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ABSTRACT

Architectural barriers deny many members of society convenient access to indoor and outdoor recreational environments and facilities. Individuals with different handicapping conditions are often hindered in getting from one place to another by such barriers. This publication is designed to serve as a beginning reference and resource about architectural barriers and accessibility. Specific chapters deal with application of general principles, legislative mandates, rules, and regulations pertaining to physical education, recreation, sports, and related facilities so that each is accessible to the physically handicapped. Focus is on removal of physical and architectural barriers in facilities used for physical activities so that everyone can use them regardless of type or severity of handicapping condition. In seven chapters the following subjects are discussed: (1) accessibility and attitudes; (2) architectural accessibility legislation; (3) physical education and recreation facilities; (4) swimming pools; (5) outdoor recreation facilities; (6) playgrounds; (7) transportation and travel. Each chapter concludes with an annotated bibliography for further reading. (JD)

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PREFACE

The surest test of a nation and its people is in its architecture.

In recent years, a great deal of interest in problems of architectural accessibility has been expressed by personnel from many different disciplines and walks of life. Despite federal legislation, mandates in every state, and regulations in some local areas, facilities of all types continue to be built and renovated without consideration of barriers, accessibility, and availability. In fact, many students with various physical impairments and orthopedic conditions are relegated to special schools simply because they cannot get into and around in existing buildings.

A multitude of similar problems are related to physical education, recreation, sports, aquatic, and camping programs and facilities. Confusion and contradiction abound. Individuals in positions of prominence and influence in these areas have publicly stated that laws, mandates, and regulations requiring accessibility were not intended for recreation facilities of any kind. However, this situation is changing dramatically.

While specific barriers are being eliminated and facilities of all types made accessible and functional, not enough is being done in attacking the major problem and cause of these situations and conditions--*attitudinal barriers*. Although major thrust and emphasis of this publication is upon eradicating symptoms, basic attitudinal problems must be considered and kept foremost in mind. Only with concerted effort and attention to both cause and effect can problems of accessibility be eliminated most effectively and rapidly.

Contents of this publication are designed to serve as a beginning reference and resource about architectural barriers and accessibility. Specific chapters deal with application of general principles, legislative mandates, rules, and regulations to physical education, recreation, sports, and related facilities so that each is accessible. Definitive resources are provided about a variety of physical education, community recreation, and outdoor facilities including aquatic centers and swimming pools. Focus is on removal of physical and architectural barriers in facilities used for physical education, recreation, and sports so that everyone can use them regardless of type or severity of handicapping condition. Yet, attitudinal barriers between leaders and participants, planners and users, therapists and patients also need to be eliminated. To convey a positive attitude toward problems of access for all, the term *architectural accessibility* rather than architectural barriers has been employed.

Another implicit and explicit thread throughout this publication is the importance and necessity of actively involving consumers--impaired, disabled, and handicapped persons themselves--in all aspects of planning, developing, monitoring, and evaluating facilities in general and those used in physical education, recreation, sports, and related activity programs in particular. It is imperative that persons most directly affected not only be provided opportunities but be sought to provide input and information about decisions that so intimately affect their futures and their very destinies. It is to the end of true equality in architecture so that everyone, regardless of type or severity of handicapping condition, has full and free accessibility to come and go as he/she pleases that this publication is respectfully dedicated. Only when this goal is fully achieved will every person have opportunity to attain fullness in the highest quality life.

Julian U. Stein
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ACCESSIBILITY AND ATTITUDES

Architectural barriers deny many members of society convenient access to indoor and outdoor environments and facilities. These man-made barriers have been described as "...obstacles which impede mobility or activity in residence and living space, in work space, and in public places which include cultural and recreational areas." (50)*

Individuals with different handicapping conditions are often hindered in getting from one place to another by such barriers. Limitations placed on mobility may similarly affect interactions with others, prevent individuals from getting needed services, and even leave some in dangerous situations. Bathrooms too narrow for people in wheelchairs to enter or use, and flights of steps which prevent wheelchair users from entering or changing floors are representative examples of such barriers. Curb cuts placed in the best position for wheelchair users can create orientation problems for independent and mobile blind persons. Obviously, architectural accessibility is complex and requires a great deal of thought and cooperation among involved groups and individuals.

These situations not only affect individuals with permanent or obvious physical conditions, but persons with temporary or hidden conditions as well. People with baby strollers, persons who must temporarily use crutches, people wearing leg braces, or individuals with heart conditions are just a few affected by architectural barriers whose needs are often overlooked. Only seventeen percent of physically impaired and disabled persons are born with such conditions; the other eighty-three percent acquire disabilities through disease, accident, war, or old age. (50) Most people at one time or another in their lives are personally affected by architectural barriers. Even if an individual is not so affected, need for all facilities to be accessible to everyone is imperative as a basic human and civil right.

All features of barrier free design must be linked together as part of a coordinated whole. An accessible rest room on the second floor of a building cannot be used if the only way to the second floor is up a flight of stairs. Ramps need to be planned and placed so as to compliment features such as steps and architectural style. Curb cuts on one side of the street are of little value. Each barrier must be eliminated according to specific criteria so as to be functional as well as meet certain standards.

In many ways architectural barriers reflect society's attitudes toward persons who differ from certain expectations of physical, sensory, or intellectual performance. Institutional-looking buildings also reinforce negative stereotypes and attitudes. Even names of facilities and programs can communicate attitudes toward persons with handicapping conditions-- *Last Chance House, Charity Refuge, SOS Workshop, Home for Incurables.*

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*Numbers in parentheses refer to the number of the corresponding reference in the resource section at the end of the chapter.

Individuals with various handicapping conditions have been treated in various ways by different societies. They have been viewed as sinners, persons possessed by devils in some societies to God's *special* children with special gifts in others. We are still affected today by some of the antiquated and unfounded attitudes of previous societies and cultures.

Not until development of *Attitudes Toward Disabled Persons Scale* (71) in 1960 was there any reliable measure of such attitudes. (59) This scale consists of thirty statements to which an individual responds according to degree of agreement or disagreement. Although comparability according to age and educational levels and reliability of the test appear to be acceptable, its single score does not reflect a balanced weighting of the variety of specific elements contained in the scale. (62)

Attempts to measure degree of preference people have for persons with various handicapping conditions are sometimes made. However, some rankings of handicapping conditions may tend to polarize and stigmatize various groups which could ideally be working together for the good of *all* individuals with handicapping conditions. Since general *attitudinal dimensions* for a wide variety of conditions exist, it would appear that these attitudinal dimensions could provide stronger bases for organizing programs and activities than attitudes toward specific handicapping conditions. (61)

Generally, favorable attitudes toward individuals create positive interpersonal relationships and stimulate these individuals to achieve more than expected; the converse is also true. Persons who are treated less favorably may come to believe they are in fact inferior and consequently behave as if they were inferior. Architectural barriers exemplify less than equal treatment of individuals with limited mobility. Able-bodied individuals may profess to be very accepting of persons with such conditions, but continued existence of architectural barriers in schools, recreational areas, places of employment, and housing facilities points out that a great deal more must be done to enable these individuals to enjoy rich, full, productive and rewarding lives.

Despite federal, state, and some local legislation requiring that all facilities be accessible, architectural barriers still pose great problems for special populations. Many communities and states continue to emphasize isolating special populations in segregated facilities or in special classes in regular schools. Groups of able-bodied persons still superimpose their wishes on special populations whether these approaches and procedures are appropriate or desired by the group for which such services are designed. Special projects, task force groups, advisory panels, planning committees, and countless other groups explore problems of facilities and equipment for special groups. Unfortunately, very few of these planning groups have involved or even asked input from or opinions of those who are to be most directly involved--*impaired, disabled, and handicapped consumers and their families*. As a result--

- Some playgrounds designed for severely and profoundly mentally retarded adults can best be used by Marine Commandos!

- Braille trails go unused by the blind!

- Totally accessible facilities are found to be far from totally accessible!

- Countless millions of dollars are used to build special facilities not needed or wanted by the group for which they were designed!

- People are ripped off unmercifully by guarantees that don't exist and expensive devices that can be obtained free or made inexpensively!

- Individuals are prostituted by special programs, unique aids, and scientific sounding programs, activities, and devices that are not special, unique, or scientific!

Many expensive and extensive special facilities are unnecessary. Participants want to take part in programs conducted in facilities that are as little different from those used by their peers and contemporaries as possible. Basic accessibility and availability are keys to use by even the most severely and multiple involved persons. (64)

In planning any program or activity--including facilities--it is *imperative* that several groups be included in providing input and making decisions that so intimately affect them.

- *Consumers themselves*--individuals with various handicapping conditions for whom programs, activities, and facilities are designed; in too many instances programs, activities, and facilities are planned and implemented in ways not consistent with what populations for which they are designed want; representative impaired, disabled, and handicapped persons--including mentally retarded--need to be consulted to provide this kind of input.

- *Persons* who are going to use facilities, direct programs, and coordinate activities in various leadership roles need to provide input. Too often architects dictate program by facilities they design rather than heeding requests, needs, and input from those who are going to use the facilities.

By obtaining input from consumers and providers of services, facilities can be made functional for programs, approaches, populations, and leaders who are going to direct and guide activities in these facilities. The best facilities have used these sources for input and direction. In fact, some of the most practical, functional, and inexpensive recreational facilities for use by special populations have been planned and designed by these populations themselves.

In a variety of outdoor recreation programs, greatest needs are in having facilities available and functional along with removal of architectural barriers. With current emphasis on returning and/or keeping persons in the community and on programs in least restrictive environments and most normal settings feasible, there is an ever increasing need to make existing facilities available and accessible to and functional for *everyone*, including severely and profoundly mentally retarded persons and multiply involved populations. With state and private residential facilities also providing recreation programs and leisure opportunities for many of these same groups, it seems that coordinated plans should emphasize approaches whereby impaired, disabled, and handicapped persons can use and capitalize upon community facilities. In this way facilities are adapted so that special populations can use them in terms of their individual needs. All physical education, recreation, and sports facilities must be made accessible for everyone who wants to and is able to participate, whatever the type, degree, or severity of involvement.

Design Guidelines

At the present time a variety of resources deal with adapting facilities to make them free of architectural barriers. *The American National Standards Institute Standards for Making Buildings and Facilities Accessible to and Usable by Individuals with Handicapping Conditions* (8) were issued in 1961 and reaffirmed in 1971. A project at Syracuse University School of Architecture to adapt and extend these standards has just been completed (1977). Proposed standards are available at this time for interested persons to review and express their reactions.[1] Although standards for architectual accessibility may vary to some extent according to specific conditions and unique factors at state and local levels, most jurisdictions use directly or modify slightly basic ANSI Standards. However, experience has shown that in some instances facilities meet the standard but are not really functional or usable. For example, a small porch or stoop that is only three feet wide meets the standard but is functional only if the door opens inward; at least five feet are necessary if the door opens outward. These inconsistencies reemphasize need for input from and evaluation by consumers themselves.

Although barrier-free design has been legally mandated in facilities constructed or renovated with federal funds for nearly ten years, Joyce (20) found that schools of architecture in the United States and Puerto Rico provided only minimal instruction in barrier-free design. In his survey, sixty of ninety-three schools surveyed responded as follows:

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[1] For a copy of the proposed new *American National Standards Institute Standards for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped*, write: Dr. Edward Steinfeld, Project Director, New ANSI Standard for the Physically Handicapped, Research Office, School of Architecture, Syracuse University, 118 Clarendon Street, Syracuse, New York 13210.

- One school required a class in barrier-free design for a degree in architecture.

- Six schools offered a course on the subject, but these were mostly continuing education type courses for architects.

- Fifty-one schools touched upon the topic in advanced studio classes.

- Two did not concern themselves with the subject.

Joyce believed that the best way to get architects to help solve problems of architectural barriers was to urge state registration boards to include questions about this subject in their examinations. This recommendation is appropriate not only in terms of federal mandates but also in view of the fact that *every* state has legislation governing accessibility of facilities built or renovated with state funds. In addition, some local jurisdictions have similar regulations in their codes and standards. With recent signing of Section 504 of the Rehabilitation Act of 1973 which prohibits discrimination against individuals with handicapping conditions in any program or activity receiving federal funds, need for well informed, sensitive, and understanding architects is great. This need is intensified with emphasis on integrating impaired, disabled, and handicapped persons into regular programs and activities of all types and descriptions. The future indicates that these considerations will be even more critical than they are today.

Although most standards pertain to basic accessibility of buildings and related structures, such barrier-free design features are appropriate for and applicable to physical education, recreation, sports, and similar activity area facilities. In fact, basic accessibility and availability are far more important factors to consider in these areas than specialized facilities *per se*. Basic factors that are important to consider for accessibility of all facilities include:

- Sufficiently large rest rooms with grab bars and accessible sinks and mirrors.

- Low public telephones.

- Low and easily operated water fountains.

- Non-skid floors.

- Elevators, ramps, and/or special lifting devices rather than steps.

- Proper lighting.

- Doors that are at least thirty-two inches wide.

- Ramps that have a slope not greater than one foot rise in twelve feet.

- Handrails that are smooth, extend one foot beyond the top and bottom, and placed on at least one side of ramps that are thirty-two inches high.

- Door thresholds flush with the floor.

- Curb-cuts.

- Special and extra large parking spaces for vans and with sufficient space between cars when doors are open.

- Braille markers on elevators and in other key places for information.

- Sound system for emergencies and other program uses.

- Visual warning system for emergencies.

Modifications and Adaptations

Mace (44 p. iv) stated that basic assumptions underlying modification of any existing building is predicated on the principle that needs of impaired, disabled, and handicapped people are exactly the same as needs of their able-bodied friends and associates. Where facilities are available to physically able persons, they should be designed to be accessible to and usable by physically impaired persons. Conversely, all facilities should be planned, designed, and constructed so that they are accessible to *everyone*, including the most severely, profoundly, and multiply involved. Necessary modifications and adaptations of existing facilities must be planned and implemented in most feasible and economical ways to make the dream of full participation in all life activities through total accessibility a reality.

In planning for the site of their 1976 annual meeting, staff of the American Association for the Advancement of Science (AAAS) learned that the majority of disabled persons were able to attend most meetings with only minor structural adjustments and changes in arrangements. Rewards gained far outweighed efforts required to make meetings fully accessible. Persons with handicapping conditions, both members and non-members of associations and organizations, were available and eager to assist in planning, advising, and executing such projects. Further information on this project can be found in *Barrier Free Meetings: A Guide for Professional Associations*. (13)

Many variable factors must be considered when establishing priorities for modifying facilities. However, it is difficult to recommend a set of priorities which apply to all building types. It is necessary though to consider modifications and adaptations so that facilities can be accessible to and functional for individuals with different handicapping conditions. So often the only considerations are given to individuals with mobility difficulties while ignoring needs of those with sensory impairments. In addition, such modifications are helpful to many segments of the able-bodied population. Priorities based on such factors as building use, economics, administrative policy, number of floors, and type of construction should be set on an individual basis for each modification project. For example--

- To make use of a building, one must be able to approach and enter it; thus *access* to a building and site considerations are a first priority.
- Once inside a building, a second consideration is *movement to* and *use of* primary facilities--i.e., classrooms, activity areas, offices. This may involve vertical as well as horizontal circulation if primary facilities are on more than one floor.
- Toilet and other *support facilities* might be a third priority. (44 p. 48)

Most necessary facility adaptations are included in American National Standards Institute Standards (8)--pitch of ramps, size of rest rooms and adaptations of stalls, heights of drinking fountains and telephones, size and placement of parking spaces, type and pitch of walks, size of door jambs, placement of hardware--and only need to be applied to physical education, sports, and related recreational facilities. Common sense application can be made to certain aspects of these facilities--

- Extend pitch of ramps for nature trails, walks, and other areas requiring locomotion.
- Make nature trails, walks, swimming pool decks, and similar passage areas a minimum width for two wheelchairs to pass.
- Lower basketball goals and reduce apparatus size for youngsters of similar chronological ages and functional levels whether or not they are in wheelchairs or use other assistive devices--lower baskets in and of themselves are not necessary or desirable for wheelchair basketball.
- Use lights behind basketball backboards that are synchronized with the game clock and timer's horn to assist those with hearing problems.

Again this is where input and recommendations from individuals who take part in and lead programs--rather than architects or those talking from just a theoretical base--are so very important. Many of the most practical, functional, and realistic adaptations have been initiated by consumers themselves.

Although early legislation and court decisions focused on accessibility requirements for new construction, emphasis is now shifting toward making existing buildings barrier free. Some state and municipal building codes, such as those of Massachusetts and Chicago, stipulate, with certain exceptions, that any remodeling of public buildings must result in accessibility for everyone. North Carolina has made a two million dollar fund available for remodeling state facilities to make them accessible. Federal funds have been authorized through the Education for All Handicapped Children Act (PL 94-142) and the Vocational Rehabilitation Act (PL 93-112) so that state and local agencies can renovate certain facilities to make them accessible. Tax credits can also be obtained by companies as incentives to remove architectural barriers.

Three classes of projects are generally recognized in such regulations:

- Projects in which alterations affect a small area or the extent of alterations over a large area is superficial.
- Projects entailing substantial alterations, such as rewiring and air conditioning, or a major added new structure; in those cases the entire building complex must be made barrier free.
- Intermediate situations in which the amount of work justifies barrier removal but is not extensive enough to require a total adaptation. If cost of modernization or addition falls within a certain range of the cost of the original structure, only areas affected by remodeling must be barrier free.

An often used rationalization for not making existing facilities barrier free and accessible has been cost. Some preliminary estimates for renovation projects which included making buildings accessible have been as high as forty to one hundred percent of projected costs for a project. Removal of barriers has actually been accomplished in many of these same projects for as little as three or four percent above costs of the renovation without the special considerations. When plans to make buildings barrier free and accessible are included from the beginning of a new facility, increase in costs have been found to be in the range of one-tenth of one percent to one percent above total project costs without these factors being considered.

Financial Considerations

The concept of creating a barrier-free environment is more readily accepted than the cost of making facilities accessible. Lack of research into cost-benefits as well as actual costs of barrier-free construction are two factors that allow fear of exorbitant costs to continue. Analysis of a questionnaire sent to local officials and architects by Perkins and Will revealed two important findings:

- Costs to remove architectural barriers were not important considerations to personnel in cities and counties where projects had been undertaken to remove barriers in facilities that had been inaccessible to persons with different handicapping conditions.

- Less than ten percent of architects surveyed felt that costs of buildings constructed with full accessibility would be prohibitive. (9)

Another survey with similar findings was conducted by the Department of Urban Studies, National League of Cities in Washington, D. C., in 1967. Both existing and hypothetical buildings were studied in terms of specific costs required to make them barrier free. Estimates were made that each of the new existing structures could have been built to provide total accessibility for less than one-tenth of one percent of total construction costs. Six of seven hypothetical buildings studied could have been built barrier free for less than one-half of one percent of original construction costs. (9)

It is difficult to make a direct comparison between original construction costs and costs for renovating a building years later. Modifications to existing buildings usually cost more than new construction because often something must be removed or changed drastically before installing devices and making changes to insure that the facility is barrier free and accessible. This process can be expressed in the following formula--

Cost of Modification = Cost of Removal + Cost of Additions

Despite possibilities of increased costs, existing facilities must be made accessible as soon as possible. Cost of removing barriers must be planned for and included in established maintenance budgets as well as those used for capital improvements. While more costly than making new facilities barrier free and accessible, renovations and modifications of existing facilities are not nearly as expensive as generally felt. In fact, actual figures and percentages for this process are many times lower than figures often given. Some buildings have been made totally accessible for as little as three or four percent above projected renovation or remodeling costs without considering making facilities barrier free.

Benefits of barrier-free design are realized by able-bodied persons as well as by those with mobility or sensory problems. A recent study by the American Mutual Insurance Alliance noted the following advantages of accessible facilities:

- Few accidents in public buildings reduce losses and rates under health insurance policies.

- Wide doors and ramps permit rapid evacuation since standards recommended for aiding handicapped persons also meet highest fire prevention standards.

- Since buildings with aids for handicapped individuals have fewer hazards that result in accidents and liability claims, insurance rate reductions may be obtained on public liability policies when architectural barriers are removed.

- Elimination of barriers also reduces chances of work-connected accidents so that employers benefit through reduction in compensation insurance premiums. (3)

The Community Development Block Grant Program makes funds available to eligible cities and counties when their needs are documented. Local officials are responsible for assessing community needs, planning appropriate development of projects and activities, and taking the initiative to develop proposals to obtain these funds. An analysis of housing needs of handicapped residents along with appropriate proposals to meet these needs must be included in plans if a municipality is to receive funds under this Block Grant Program. Some ways Community Development Block Grants can be used to help handicapped individuals include:

- Acquiring, constructing, or revamping special recreation areas for full use by handicapped populations.
- Fostering cultural activities through neighborhood libraries or museums, and promoting activities such as crafts and homemaking.
- Using funds for special projects to remove material and architectural barriers to promote mobility and accessibility in urban areas.
- Planning, managing, and evaluating community activities designed for handicapped persons.
- Planning for the design, location, and operation of community mental health centers, group homes, and recreation centers for individuals with various handicapping conditions.

Guidelines for Community Action

Communities must make sure that appropriate barrier-free provisions are incorporated into locally applicable building codes while at the same time ensuring compliance with federal and state laws already on the books. The following are considerations for initiating community action:

- Form an architectural barriers task force to expose decision-making community leaders and groups to problems of architectural accessibility; focus on both practical and/or social aspects of accessibility.
- Develop a standing committee on architectural barriers to encourage local interest in eliminating barriers, serve as basis for continuing community education, and to organize and oversee such projects.
- Reach all the mass media--newspapers, television, radio, newsletters, local periodicals--with this important message.

- Develop a statement of need to use in recruiting influential individuals to join this effort.

- Plan and carry out a survey to determine accessibility of community buildings.

- Prepare a guide on accessibility of community facilities.

- Set up a watchdog program for continuous contact and follow-up with building owners, architects, and builders to ensure that new and renovated buildings are accessible to and usable by all individuals.

- Include adequate and representative numbers of impaired, disabled, and handicapped persons in all aspects of planning, implementing, and evaluating all such projects and activities, especially at policy and decision-making levels. (41)

Accessibility and Attitudes: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137-140.

1. "Access America." American Rehabilitation 1:3: 14; January-February, 1976.

   Explains the creation and functions of the Architectural and Transportation Barriers Compliance Board which has the job of making America accessible.

2. Access '76 - A Blueprint for Action. Boston, Massachusetts: Easter Seal Society for Crippled Children and Adults of Massachusetts, Inc., and United Community Planning Corporation (14 Somerset Street, 02108), 1976.

   Historic and cultural sites in the greater Boston area were surveyed for architectural barriers. Elimination of identified barriers and strategies to accomplish this were discussed. It was concluded that a series of public awareness campaigns should be initiated to secure support of funding agencies.

3. "Advantages of Barrier-Free Design." Committee on Barrier-Free Design Newsletter 20:3: 2; January 1974.

4. Aiello, Barbara, editor. Places and Spaces: Facility Planning for Handicapped Children and Adults. Reston, Virginia: Council for Exceptional Children (1920 Association Drive, 22091), 1976. 55 pp. $3.50.

Intended for special educators and architectural designers, this book provides specifications and lists of resource materials on facility design for handicapped children and adults. In an overview, one author discusses need for cooperation between architects and educators and relates his experiences in planning facilities for exceptional children. An annotated bibliography contains twenty-nine references to current literature on special facilities. Detailed are specifications for such school problem areas as inaccessible entrances, doorways, halls, and toilet facilities. A final section lists addresses and describes activities of nineteen resource groups such as the American Institute of Architects and the Center for Independent Living.

5. Allison, Larry. "How and to Whom to Complain about Barriers." Paraplegia Life 5:5: 10; September/October 1976.

   Author describes structure and function of the Architectural and Transportation Barriers Compliance Board, outlines provisions of the Architectural Barriers Act of 1968 to the Board, and gives steps to follow for reporting buildings that do not comply with the law. If the Architectural Barriers Act is really going to be enforced, citizen help is necessary.

6. American Institute of Architects, Task Force on Architectural Barriers. The Real Man. Washington, D. C.: the Institute (1735 New York Avenue, N. W., 20006), 1968.

   Contains scaled drawings of the wheelchair, parking lots, doorways, drinking fountains, stairs, rest rooms, showers, and public rest rooms.

7. American Mutual Insurance Alliance. "You Can't Get There From Here." Journal of American Insurance (reprinted with permission), 1974. Reprints available from the President's Committee on Employment of the Handicapped, Washington, D. C., 20210

   Discusses problems with man-made barriers that limit mobility of persons with handicapping conditions.

8. American National Standards Institute Standards for Making Buildings and Facilities Accessible to and Usable by Individuals with Handicapping Conditions. ANSI A117.1-1961 (R1971). New York, New York: American National Standards Institute (1430 Broadway, 10018), 1961; revised, 1971.

9. American Society of Landscape Architects Foundation and the United States Department of Housing and Urban Development. Barrier-Free Site Design. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), 1975. 66 pp.

   This publication provides a centralized reference for sharing of basic resource material on the design of exterior site facilities that are accessible to all persons. It is meant to be used as a tool for design and evaluation by administrators, landscape architects, architects, engineers, individuals with handicapping conditions, maintenance personnel, local concerned groups, and other interested people. Information presented within the publication relates to the following areas: status of federal and local legislation; relationships of costs in providing barrier-free access for both existing and proposed construction; information regarding numbers, types and characteristics of handicapped people within our society and means for gathering additional statistical information; details of how site elements such as steps and ramps, seating, handrails, parking stalls, waste receptacles and site lighting may be designed so as to be usable by handicapped people; and sources of additional information. Various types of impairments and mechanical aids are defined.

10. Architectural Barriers Guide. Chicago, Illinois: National Easter Seal Society for Crippled Children and Adults (2023 West Ogden Avenue, 60612), n.d. Single copy free; multiple copies, prices on request.

    Materials in this kit are divided into five parts: (1) Architectural Barriers: The Problem and the Challenge, (2) Creating an Architectural Barriers Task Force within your Community, (3) Guidelines for Establishing an Architectural Barriers Committee, (4) Community Survey and Guide, and (5) Carrying on a Program of Watchdog Activities.

11. Architectural Planning for the Physically Handicapped. Chicago, Illinois: National Easter Seal Society for Crippled Children and Adults (2023 West Ogden Avenue, 60612), published periodically.

    This checklist of recent publications is compiled regularly by the library of the National Easter Seal Society for Crippled Children and Adults.

12. "Barrier-Free Design for the Handicapped." Human Settlements 4:3: 24-37; July 1974.

    This article is based on a meeting of a group of experts on barrier-free design which was organized by the Centre for Social Development and Humantarian Affairs of the United Nations Secretariat and held June 3-8, 1974, at U.N. Headquarters. Discusses social implications of barriers, legislation, and means of removing barriers; also suggests what the U.N. can do to alleviate barriers.

13. Barrier-Free Meetings: A Guide for Professional Associations. Washington, D. C.: American Association for the Advancement of Science (AAAS) (1515 Massachusetts Avenue, N. W., 20005), 1976.

    This publication was compiled as a result of efforts by the AAAS Project on the Handicapped in Science to enable disabled members to attend the annual meeting of the Association in Boston, February 1976. Over 200 disabled people attended the meeting. The enthusiasm of this group prompted the Project to prepare a detailed handbook for other associations to use in making their meetings barrier free. *Barrier-Free Meetings* gives step-by-step directions on how to provide access for disabled meeting attendees, covering such areas as assessment of hotel meeting facilities and guest rooms, restaurants, tours, and transportation in terms of accessibility; interpretation services for the deaf; a system for volunteer services; coordination with disabled consultants, association staff, local committee members, and hotel staff; publicity; procedures at the meeting; and evaluation. The Guide includes a timeline for planning barrier-free meetings and examples of forms, publicity materials, resource lists, articles, and drawings that illustrate accessibility modifications to assist the meeting planner.

14. Becker, Robert H., and Robert O. Ray. "Accessibility: An Application of New Technology." Therapeutic Recreation Journal 8:4: 148-150; Fourth Quarter, 1974.

While programs to remove architectural barriers to the handicapped have been accepted as morally and ethically sound pursuits, some attempts at barrier removal have been unsuccessful. The reality of mammoth renovations required by many existing structures makes total accessibility an economic difficulty. The best effort must be the most efficient planning for available resources. MAZER-I, or similar subroutines utilizing computer graphics, will enable recreation facility planners to visualize potential barriers in terrain and buildings. More significantly, such programs will allow removal or prevention of barriers to physically disabled persons before costly errors are made.

15. California Advisory Council on Vocational Education. Barriers and Bridges: An Overview of Vocational Services Available for Handicapped Californians. Sacramento, California: California State Department of General Services, Office of Procurement, Publication Section (P. O. Box 1015, North Highlands, 95660).

This publication focuses on the state of the art in vocational education and some of the problems of including individuals with handicapping conditions in the mainstream of that service delivery system; also has relevance for architectural accessibility. One of the major problems identified is that of attitudinal barriers. A number of promising national trends, such as early identification of disabilities, litigation, legislation, normalization and mainstreaming are identified and discussed. Recommendations for change are also presented. A list of suggested resources in the areas of information services, educational activities, consumer-run activities, leisure time activities, publications, and others is included in the appendix.

16. Collings, Gary D. "Barrier-Free Access: Right or Privilege?" Physical Therapy 56:9: 1029-1033; September 1976.

Contends that barrier-free access to public facilities and transportation systems is a fundamental guarantee for elderly and handicapped citizens if they are to become contributing members of society. Emphasizes that the wheelchair should be the controlling module in space planning and usually takes four times the space required by an able-bodied person. A review is provided of legislation, constitutional theories, and current litigation within the context of providing a barrier-free environment for all.

17. Design for All Americans: A Report of the National Commission on Architectural Barriers to Rehabilitation of the Handicapped. Washington, D. C.: Superintendent of Documents (U.S. Government Printing Office, 20402), 1967. 50 cents.

18. Design for Special Needs. London, England: British Centre on Environment for the Disabled (120-126 Albert Street, NW1 7NE), three times annually.

    This is a publication on all aspects of barrier-free design.

19. "The Dutch Fight Unemployment." Report (National Center for a Barrier Free Environment newsletter) 1:1: 6; November 1975.

    Twenty-five million guilders have been approved for fighting unemployment in the construction trades in the Netherlands by commissioning private building firms and architects to adapt existing buildings so they are accessible to all. Organizations of and for these individuals act as advisory bodies to help select buildings to be adapted. So far these include government buildings, municipal facilities such as swimming pools, libraries, post offices, and train stations. Future allocations of funds are dependent upon a priority list of projects to be selected by persons with handicapping conditions.

20. "Educating Future Architects." Report 2:5: 7; September/October 1976.

21. "Entrances: A Big Problem for Handicapped Students." American School and University 48:4: 23-26; December 1975.

    Recommends criteria for accessible buildings, lists actions taken by some colleges, and summarizes information on types and costs of automatic doors.

22. "Face to Face: Pamela J. Cluff." Rehabilitation Digest 7:3: 6-8; Spring 1976.

    Pamela J. Cluff, a Canadian architect involved in designing buildings to meet needs of the occupants, is interviewed through this article. She is an advocate for persons who have difficulty using facilities designed for able-bodied people and recommends designing buildings from the inside out as a solution.

23. "Freedom of Movement is Basic Civil Right of Disabled, says Justice William O. Douglas." Programs for the Handicapped 76:5: 6; July 20, 1976.

According to Justice William O. Douglas, legislation and aggressive enforcement procedures can eliminate obstacles posed by environmental barriers to persons with physical impairments. The Justice declared that "...attitudinal barriers are more difficult to eradicate. Therefore, we need massive re-education programs, particularly for potential employers, to stress the contributions handicapped persons can offer to business and communities." Justice Douglas served as honorary chairman of National Handicapped Awareness Week, May 16-22, 1976. Co-sponsored by the National Easter Seal Society for Crippled Children and Adults, and the National Paraplegia Foundation, the event was designed to alert the public to barriers that millions of Americans face daily.

24. Funding Guide for the Removal of Environmental Barriers. Washington, D. C.: Architectural and Transportation Barriers Compliance Board (20201), May 1976. 22 pp. (Xeroxed draft.)

Briefly described are possible sources of federal and private funds for removing architectural barriers. For each federal agency, the following information is given: authorization, description, eligibility, and contact.

25. Goldsmith, Selwyn. "Britain: Breaking Down the Barriers." Rehabilitation World 2:3: 2-6; Autumn 1976.

The structure of governmental assistance to disabled persons in Britain is outlined. Author states that while access to buildings is not a matter of argument in Britain, the question of means of escape from multi-storied buildings in the event of fire is of increasing concern to disabled people. Also discussed are public housing and transportation for persons with handicapping conditions via special three-wheeled small cars and public transportation.

26. ______. Designing for the Disabled. London, England: Royal Institute of British Architects, Technical Information Service (66 Portland Place, W.1), 1963. Available from International Society for Rehabilitation of the Disabled, 219 East 44th Street, New York, New York, 10017. $7.00.

Basic reference book on barrier-free design for architects and designers. Major emphasis is on problems in the home. General checklist for planning housing modifications to accommodate persons with physically handicapping conditions is included.

27. ______. Designing for the Disabled. Second edition. New York, New York: McGraw-Hill (330 West 42nd Street, 10036), 1967. $15.00.

Research conducted since publication of the first edition has caused author to change his philosophy to one of advocating greater independence and normality for mobility-impaired individuals. More emphasis is placed on access to public buildings than to domestic housing.

28. Guilty Buildings (pamphlet). Washington, D. C.: President's Committee on Employment of the Handicapped (20210), 1976.

Ideas for local action to remove architectural barriers in the community are presented.

29. Hammerman, Susan, and Barbara Duncan, editors. Barrier-Free Design: Report of the United Nations Expert Group Meeting. New York, New York: Rehabilitation International (122 East 23rd Street, 10010), 1975.

The United Nations Expert Group Meeting on Barrier-Free Site Design analyzed architectural barriers and their social implications on handicapped persons. Measures were proposed to eliminate these barriers. Criteria for international standards to facilitate social integration and improve the economic welfare of persons with physically handicapping conditions were recommended by the Group.

30. "The Handicapped Majority." Industrial Design, May 1974.

Section on barrier-free design emphasizes design of products so they can be used by persons with handicapping conditions. Industrial designers are made aware of problems faced by persons who are expected to handle products which were not designed for people, "...but merely engineered through time by new materials and new methods." Doorknobs are one example of objects which pose these problems.

31. Harkness, Sarah P., and James N. Groom, Jr. Building Without Barriers for the Disabled. New York, New York: Whitney Library of Design, 1976. Available from the American Institute of Architects (AIA), Publications Marketing, 1735 New York Avenue, N. W., Washington, D. C., 20006. $10.95.

This book includes design solutions for typical accessibility problems in both residential and public buildings.

32. Harris, Robert M., and A. Christine Harris. "A New Perspective on the Psychological Effects of Environmental Barriers." Rehabilitation Literature 38:3: 75-78; March 1977.

Two assumptions implicit in the contemporary interpretation of the psychological effects of environmental barriers were identified and analyzed. First, according to this perspective, architectural barriers were thought to make persons with disabilities feel negatively about themselves and their abilities. If this point of view is endorsed, it seems to follow that differences between the disabled and nondisabled are reinforced, negative stereotypes about persons with disabilities are perpetuated, and people with disabilities are *kept in their place* because they are assumed to be too weak and helpless to help themselves. It is argued that this interpretation may more accurately reflect society's expectations rather than actual reactions of persons with disabilities to the limitations imposed by inaccessibility. Second, the contemporary view of environmental barriers attributes problems of accessibility just to the handicapped. This assumption seems to support denial of responsibility by the majority for the solution of a problem that affects only a few individuals, isolation of the disabled in special, segregated environments, and construction of partially accessible environments to allow persons with disabilities to function in places where they are expected to be. Since people interpret changes in the environment according to their specific needs, it seems more accurate to conclude that all persons, not just those with disabilities, are potentially affected by architectural barriers and benefit from their prevention. The locus of control must be changed so all people, including those with disabilities, take an active role in planning for needed changes. The scope of the problem must be broadened so all members of society unite to pursue a common solution to a common problem.

33. Henshaw, Mariona. "Is Your City Barrier-Free?" Accent on Living 19:4: 28-30; Spring 1975.

Author and her husband initiated a successful campaign to amend their city's building code to make buildings accessible to and usable by physically impaired persons. Suggestions to help others launch such a project are presented.

34. Hollerith, Richard, Jr. "Eliminating the Handicap." Reprinted from Industrial Design, May/June 1976. Distributed by the National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois, 60612.

Author predicts that a new generation of innovative products will result from the soon to be completed Syracuse University project to update the official standards for a barrier-free environment.

35. "In Graphic Form." Committee on Barrier Free Design Newsletter 3:1; February 1971.

Notes that the recently revised issue of *Graphic Standards*, a reference book which translates architectural techniques into graphics, contains detailed drawings on planning sites and interior facilities so they are accessible to persons with handicapping conditions.

36. Jeffers, James. "Working for an Accessible America." American Rehabilitation 1:2: 30-31; November-December 1976.

Discusses need for removal of architectural barriers, legal actions to remove barriers, and the role of the Architectural and Transportation Barriers Compliance Board in these problems.

37. Johnson, Jane H. "Barrier-Free Design and the U.N." Achievement 7:1: 8; September 1975.

This article is based on a special report prepared by Rehabilitation International on the 1974 Expert Group Meeting on Barrier-Free Design sponsored by the United Nations. Preliminary issues included need to upgrade the overall environment of physically impaired and disabled persons. It was emphasized that barrier-free design will benefit society as a whole, not just impaired and disabled persons, and that they themselves must assume their proper roles as the real experts in this area. Some of the International Council on Technical Aids Standards of Accessibility are also included.

38. Johnson, Warren E. Some Considerations in Designing Facilities for the Deaf. Portland, Oregon: Portland Center for Hearing and Speech (3515 S. W. Veterans Hospital Road, 97201), 1967.

39. Kirkland, Sue Anne. Architectural Barriers to the Physically Disabled. Toronto, Ontario, Canada: Canadian Rehabilitation Council for the Disabled (Second Floor, 242 St. George Street, M5R 2N5), 1973. $2.00.

Evidence is presented of the need "to plan for the accommodation of those with all types and degrees of physical impairment in the design and construction of present and future public buildings and transportation facilities." The author suggests that elimination of architectural barriers "would partially reduce some of the frustration of handicapped persons and enable them to participate actively in social, recreational and community affairs, thus alleviating much of the psychological trauma associated with physical impairment." The study discusses psychological, social, and economic effects of disability; legislation relating to architectural barriers in Great Britain, Canada, and the U.S.; and public and private barrier-free transportation alternatives. It is recommended that a governmental coordinating authority be established in Canada for the sole purpose of administering strong, unified action on the problems of architectural barriers, and it is further suggested that this organization should include representatives of all fields associated with this problem and should exist at all governmental levels. Recommendations are made concerning possible functions and activities of such an agency.

40. Klebe, Edward R. Federal Programs for the Handicapped. Washington, D. C.: Congressional Research Service, Library of Congress (20540), 1971.

Contains listing of federal programs to date which are available to handicapped persons. Included also are construction principles for rehabilitation facilities.

41. Kliment, Stephen A. "What You Can do to Organize for Change." Into the Mainstream: A Syllabus for a Barrier-Free Environment. Washington, D. C.: The American Institute of Architects and The Rehabilitation Services Administration, June 1975. Complete document available from IRUC in xerox, $5.10. Item number 133.

Suggestions on how to form an architectural barriers task force concerned with both practical and social aspects of accessibility are given. Ideas for forming a standing committee on architectural barriers are also presented. A survey of community buildings to measure accessibility is suggested as a possible project for the committee.

42. Lassen, Peter. Barrier-Free Design: A Selected Bibliography. Washington, D. C.: Paralyzed Veterans of America, Inc. (7315 Wisconsin Avenue, N. W., Suite 301W, 20014), 1973.

This indexed bibliography covers a wide range of topics related to architectural accessibility. Some of the twenty-two sections included are: planning; standards, specifications, and criteria; transportation; furniture, aids, and appliances; and specific types of facilities.

43. "Living and Learning: A Retrospective Look at a Design for Disability." The Architect 1:2: 54-57; March 1971.

Four years after its opening in 1966, the Princess Margaret School for Physically Handicapped Children (Taunton, Somerset, England) was reappraised by the architect. Part of the philosophy behind the design of this school dictates that physically impaired and disabled children should not be robbed of all initiative and the will to succeed by finding every physical obstacle always overcome for them by the planners. Other than changing eating arrangement from one central area to many smaller family dining rooms, no major alteration to the facility were necessary.

44. Mace, Ronald L. Accessibility Modifications: Guidelines for Modifications to Existing Buildings. Raleigh, North Carolina: Special Office for the Handicapped, North Carolina Department of Insurance (P. O. Box 26387, 27611), 1976.

To assist people in modifying existing buildings, guidelines derived from the handicapped section of the North Carolina State Building Code have been developed and presented in this book. A Survey of Existing Buildings is presented to assist readers in identifying problem areas in a building and in evaluating potential modifications. An illustrated guide to modifications shows particular problems and recommended solutions. The final section on Cost Analysis offers information on possible costs by illustrating a recent accessibility modifications project in which costs of each modification are reported.

45. Mace, Ronald L. An Illustrated Handbook of the Handicapped Section of the North Carolina State Building Code. Raleigh, North Carolina: Governor's Study Committee on Architectural Barriers and the North Carolina Department of Insurance (P. O. Box 26387, 27611), 1974. A 1976 revised edition is also available.

This publication includes a reprint of the section on general construction, Volume 1, Section 11x: *Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped* and December 1973 amendments. To communicate graphically critical needs of persons with handicapping conditions, each section of the code has been reviewed and illustrated. Illustrations are examples of minimal design requirements, and intended to show need for such requirements so that designers and builders can find newer and better solutions.

46. Making Facilities Accessible to the Physically Handicapped. Albany, New York: New York State University Construction Fund (194 Washington Avenue, 12210), 1967. Revised version issued January 1974.

Performance criteria in this guide have had widespread influence on design of barrier-free higher education facilities in New York and other states. The manual can serve as an evaluation mechanism as well as a design guide.

47. McGaughey, Rita. "From Problem to Solution: The New Force in Fighting Environmental Barriers for the Handicapped." Rehabilitation Literature 37:1: 10-12; January 1976.

Whereas the last decade witnessed a proliferation of public educational programs designed to create awareness of problems of inaccessibility for handicapped persons, today's focus is on solutions. The author describes proceedings of a special conference on Developing a Barrier-Free Environment, held in conjunction with 1975 Convention of the National Easter Seal Society for Crippled Children and Adults. She mentions other federally funded projects, and cautions against dangers of fragmentation within the movement for a barrier-free environment.

48. Michaux, Louis Arthur. The Physically Handicapped and the Community: Some Challenging Breakthroughs. Springfield, Illinois: Charles C. Thomas (301-327 East Lawrence Avenue), 1970. 122 pp.

This book was written to assist disabled and nondisabled persons in working together as a community. For nondisabled readers, the author, who has cerebral palsy, offers insights into attitudes and feelings of disabled persons. For disabled readers, the author offers ways in which disabled people can live meaningfully in terms of attitudes, adaptive equipment, and development of meaningful relationships. Ways that the community in general and the church in particular can help disabled people get into the mainstream of life are discussed at length. Appendices include resources for adaptive equipment, education, housing, and legislation.

49. Minch, Janet A. Advocacy in Architectural Barriers: A Demonstration Project in Advocacy for Physically Handicapped Children. Child Advocacy Project Grant # OEG-0-72-5315. Worcester, Massachusetts: Easter Seal Society for Crippled Children and Adults of Massachusetts, Inc. (37 Harvard Street, 01608), 1975. 17 pp.

Activities discussed in this report were part of the first three years of development of the Demonstration Program in Advocacy for Physically Handicapped Children. This overview summarizes the issue of architectural barriers. Architectural or physical barriers to the participation of physically and multiply handicapped students in post-secondary education and training systems constituted the main problem dealt with by the project. Background study presented included the following: assessment of needs as perceived by handicapped students nearing completion of high school and alumni five years after graduation, review of related legislation, and field and legal study of the state of the art of architectural barriers in Massachusetts. Other aspects of the project discussed are development of objectives, composition and methodology of the task force, implementation, and evaluation.

50. Nugent, Timothy. Architectural Accessibility. Awareness Paper for the White House Conference on Handicapped Individuals. Washington, D. C.: the Conference (1832 M Street, N. W., Suite 801, 20036), 1976.

This Awareness Paper was designed to serve as a resource to stimulate discussions leading to solutions to problems of architectural accessibility facing individuals with handicapping conditions. The author discusses past, present, and future efforts to make buildings accessible on local, state, national, and international levels.

51. People are Asking About...Displaying the Symbol of Access. (pamphlet) The President's Committee on Employment of the Handicapped and the National Easter Seal Society for Crippled Children and Adults. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), n.d.

This pamphlet was written to bring some uniformity to use of the symbol of access in the United States, develop a greater awareness of its meaning among the general public, and protect the symbol from the encroachment of commercial interests that could decieve and defraud persons with physically handicapping conditions. As architectural needs differ from each building depending on the nature of the activity to be conducted, a table of accessibility requirements for specific buildings is presented.

52. Planning Facilities for Physically Handicapped Children. Knoxville, Tennessee: School Planning Laboratory, The University of Tennessee (37916), 1974. 46 pp. $1.00.

Guidelines for eliminating indoor and outdoor architectural barriers are featured in this conference report on planning usable, accessible facilities for physically impaired children.

53. "PVA Earmarks Funds to Promote Barrier-Free Design." Paraplegia News 229:336: 11; September 1976.

The Paralyzed Veterans of America has allocated $100,000 to implement changes in state and local laws relating to problems of persons with handicapping conditions. Barrier-free design coordinators on the national and chapter levels will be working to introduce new design concepts which will affect many projects in transportation, buildings, and site development.

54. Rehabilitation Services Administration: Society for Rehabilitation Services, and Department of Health, Education, and Welfare. Design for All Americans: A Report of the National Commission on Architectural Barriers to Rehabilitation of the Handicapped. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), December 1967.

Study and recommendations to assist interested persons in procuring usable facilities for all people.

55. Rollins, Tom. "Architectural Barriers...They are Beginning to Fall." Green Pages 1:1: 6-8; Fall 1975.

The ten top architectural barriers are listed, and common barriers to persons in wheelchairs, on crutches, or using walkers and braces described. Author notes a recent increase in public awareness of need for architectural accessibility and other needs of physically handicapped citizens.

56. Rosenthal, Robert, and Lenore Jacobson. "Teachers' Expectancies: Determinants of Pupils IQ Gains." Psychological Reports 19: 115; 1966.

57. Salmon, Frank C., and Christine F. Salmon. The Blind: Space Needs for Rehabilitation. Stillwater, Oklahoma: Stillwater University Press (74074), 1964. 82 pp.

Statement of what architects and administrators need to know to provide a rehabilitation center for visually impaired persons.

58. Schulz, Paul J., and Delmer Oldbury. "Curb Cuts Should Benefit Everyone." Accent on Living 20:3: 74-76; Winter 1975.

Administrators of an ongoing program to remove architectural barriers in Los Angeles discovered that persons with physical impairments often have different and conflicting requirements. For example, needs of wheelchair users and blind persons both should be considered in designing curb cuts. In Los Angeles, California, this problem was solved by having several different types of curb cuts tested by representatives of various groups of physically disabled persons. A cut that would meet the needs of the greatest number of persons in each group was chosen.

59. Schwerdt, John. "Including the Excluded." The Architect Part I 1:1: 28-32; February 1971; Part II 1:2: 50-53; March 1971.

In Part I of this article, Schwerdt reviews British legislation on making buildings accessible to persons with physically handicapping conditions. He warns that poorly designed buildings can turn disabilities into handicaps, while better designed buildings will reduce handicaps. In Part II the author examines a number of specific, recurrent design problems in making buildings accessible to and usable by persons with physical impairments, disabilities, and handicaps. He cites benefits of social integration of these individuals with able-bodied persons, and stresses the importance of designing to provide for integration.

60. Sheila, Sister M. "When You Wish Upon A Star. The Self-Fulfilling Prophecy in Special Education." Education and Training of the Mentally Retarded 3:4: 189; 1968-1969.

61. Siller, Jerome W. "The Structure of Attitudes Toward the Disabled." Research and Demonstration Brief, December 15, 1970. Washington, D. C.: United States Department of Health, Education, and Welfare, Rehabilitation Services Administration (Room 3427 South, 330 C Street, S. W., 20201, Attention: Mr. George Engstrom).

62. Siller, Jerome W., and Abraham Chipman. "Factorial Structure and Correlates of the Attitude Toward Disabled Persons Scale." Educational and Psychological Measurement 24:4: 831; 1964.

63. "Six Architectural Projects Chosen for 1976 Bartlett Awards." Programs for the Handicapped 76:4: 2; June 14, 1976.

The Bartlett Award was established in 1969 to honor buildings that are especially accessible to handicapped persons without detracting from excellent design. The award is jointly sponsored by the American Institute of Architects (AIA) and the President's Committee on Employment of the Handicapped. Recipients must first be selected to receive the nation's highest awards for architectural excellence, the Honor Awards of the AIA. None of the six 1976 Bartlett award winners were facilities designed primarily for persons with handicapping conditions. Perhaps this is evidence of the trend toward integration and deinstitutionalization.

64. Stein, Julian U. "Physical Education, Recreation, and Sports for Special Populations." Education and Training of the Mentally Retarded 12:1: 4-13; February 1977.

65. Steinfeld, Edward. Interim Report: Barrier-Free Access to the Man-Made Environment--A Review of Current Literature. Washington, D. C.: U. S. Department of Housing and Urban Development, Office of Policy Development and Research, October 1975. Available from ERIC Document Reproduction Services, P. O. Box 190, Arlington, Virginia, 22210. $2.06 plus postage. ED 123 855.

    This report is a synopsis of the first major product of a two-year research contract entitled, "A New ANSI Standard for the Physically Handicapped." Current knowledge regarding barrier-free design is condensed into the following areas: (1) history and trends in efforts to achieve a barrier-free environment, (2) extent of the problem, (3) existing federal, state, and municipal legislation and regulations regarding barrier-free design, (4) research findings that could be applied to the design of a barrier-free environment, (5) knowledge about effects of barriers on life patterns of people and how these effects could be mitigated, (6) available building products and their suitability for use by people with disabilities, and (7) collection and comparison of all available design criteria for barrier-free design.

66. Tica, Phyllis L., and Julius A. Shaw. Barrier-Free Design: Accessibility for the Handicapped. New York, New York: Institute for Research and Development in Occupational Education, The Graduate School and University Center of the City University of New York (1411 Broadway, 10018), 1974.

    This booklet is designed to provide policy makers, administrators, architects, engineers and contractors with a convenient source of information to aid them in designing and building barrier-free environments. It is comprised of the accessibility aspects of the existing New York City Building Code and additional recommendations from national and international sources and from first-hand experiments with individuals with handicapping conditions.

67. Wachter, Peter; John Lorenc; and Edward Lai. Urban Wheelchair Use: A Human Factors Analysis. Chicago, Illinois: Access Chicago (Rehabilitation Institute of Chicago, 345 East Superior Street, 60611), 1976. 21 pp.

    This booklet is a survey of considerations relative to architectural and construction features that can add productivity and bring better lives to millions of people. Research was designed to pinpoint environmental factors that restrict access to transportation and public spaces for wheelchair users. Access problems were not confined to wheelchair users but also affected persons who were aged, or pregnant, or who had such conditions as heart disease, asthma, or a number of other temporary or permanent handicapping conditions. The problem is that most urban environments are designed to meet needs of a theoretical average person, although at any point in time many persons do not conform to that average.

Physical problems of wheelchair users as well as their limited reach affect design needs. Environmental and transportation barriers and their solutions are discussed, along with problems of vertical movement.

68. Welcome In(n) (brochure). The Hague, The Netherlands: Netherlands Society for Rehabilitation on behalf of ICTA (International Commission on Technical Aids, Housing and Transportation of the World Organization Rehabilitation International). Available from ICTA, Fack, S-16125, Bromma, Sweden.

Specific examples of architectural barriers in hotels, motels, and restaurants are illustrated in cartoon style on the left hand side of this brochure, and suggested solutions are shown on the right side. At the end of the pamphlet the most important facility adaptations are summarized.

69. "White House Conference Set for Sheraton-Park Hotel." White House Conference on Handicapped Individuals National Newsletter 1:2: Fall 1976.

Management of the Sheraton-Park Hotel in Washington, D. C., has agreed to make any permanent renovations necessary to make the site of the May 25-29, 1977, White House Conference on Handicapped Individuals accessible. More than 400 of the 1,200 guest rooms will be made accessible. Some of the renovations to be made include: permanent ramping of entrance ways, swimming pool deck, and service entries from parking areas; lowered telephone booths; conversion of several service elevators to passenger status; and large raised letter/numeral signs for visually impaired delegates.

70. Yerxa, Elizabeth June. "Uncle Tom is Alive and Well and His Name is Tiny Tim: Public Attitudes Toward the Physically Different." Paraplegia Life 5:6: 7, 20-21; November/December 1976.

Purposes that our attitudes toward persons who are physically different "cause us to act in ways that reduce their opportunities to attain their potential, and...often alter their self-concept in humiliating, self-defeating ways." Discusses some research findings on attitudes toward individuals with handicapping conditions, notably those of Siller and Gellman.

71. Yuker, Harold E.; J. R. Block; and Janet H. Young. A Scale to Measure Attitudes Toward Disabled Persons. Albertson, New York: Human Resources Center (11507), 1964.

72. Yuker, Harold E.; Alfred Cohn; and Martin A. Feldman. The Development and Effects of an Inexpensive Elevator for Eliminating Architectural Barriers in Public Buildings. Hempstead, New York: Hofstra University (1000 Fulton Avenue, 11550), 1966.

Contains review of literature on architectural barriers and their elimination, education and rehabilitation of disabled persons, and a description of Hofstra University's program for higher education of physically impaired and disabled individuals. Architect's specifications for elevator installations are also given.

ARCHITECTURAL ACCESSIBILITY LEGISLATION

Consumer groups such as the American Coalition of Citizens with Disabilities, Disabled in Action, and Eastern Paralyzed Veterans Association along with other national, state, and local organizations believe that the question of accessibility for all impaired, disabled, and handicapped persons involves basic constitutional rights. Many physical, sensory, mental, and multiple conditions restrict individual mobility; rehabilitation often restores such mobility to these individuals. Physical movement is absolutely necessary in our society and is at the core of every educational, vocational, recreational, and social opportunity available to citizens of the United States. Able-bodied persons, on the whole, enjoy such opportunities; persons with various handicapping conditions often do not. Freedom of movement is considered by many as a basic civil right for all Americans, guaranteed specifically in the Bill of Rights as well as in other sections of the United States Constitution. Thus, buildings that restrict freedom of movement for persons with different handicapping conditions violate basic constitutional rights. This principle applies to use of public transportation, housing, recreational facilities, and to the general environment.

Several recent court cases have dealt with application of Section 504 of the Rehabilitation Act to rights of basic accessibility of facilities and transportation. One decision indicated that "...there is no equality of treatment merely by providing (the handicapped) with the same facilities (as ambulatory persons)..., for (handicapped persons) who (can) not (gain access to such facilities) are effectively foreclosed from any meaningful (public transportation)." (11) Simply put, this decision stated that if handicapped persons are treated exactly the same as nonhandicapped persons, discrimination may result against handicapped persons. For equality to be achieved on behalf of handicapped persons, efforts must be toward *effective* equality which encompasses a concept of equivalence that in fact meets needs of handicapped persons to the same extent that corresponding needs of nonhandicapped persons are met.

Farber maintained that "...voluntarism in the area of accessibility, as in civil rights issues, is essentailly non-existant." (7) Impaired, disabled, and handicapped persons have learned through experience that voluntarism, emotion, vague policy statements, and sympathy do not produce accessibility on a day-to-day basis. Sensible action programs of federal, state, and local governments are sorely needed.

Results of public and private surveys concerning effectiveness of architectural accessibility legislation have yielded both positive and negative conclusions. These findings often have been based on experiences of persons with physical impairments and disabilities; such experiences have increased knowledge available to remove barriers. For example, an hour investigation of Dallas-Fort Worth International Airport by an individual in a wheelchair with a blind companion resulted in identification of over forty specific conditions that made the particular terminal building far from the advertised totally accessible. This reemphasizes the importance of active consumer involvement in planning and evaluating facilities and discrete differences often found between accessibility required by standards and that needed for functional use. Knowledge and necessary technology are available, and cannot be used as excuses for maintaining the *status quo* of inaccessible facilities.

Significant advances in federal, state, and local legislation mandating accessibility for persons with different handicapping conditions in new and existing buildings have been made in recent years. Since enforcement of these statutes has not always been strict enough, close scrutiny by individuals and consumer groups most affected by these laws is necessary. Greatest adherence to such mandates has been found in states and communities where consumer groups have not only monitored new construction and renovations, but have been actively involved, many times militantly, in this watchdog process.

Often laws affecting facilities for impaired, disabled, and handicapped persons depend on which level of government constructs, alters, leases, or finances a building, and whether or not the structure is considered a public building. Many different codes can affect design and construction of any one project. A community's basic building code is always linked to a series of zoning ordinances, health, housing, fire-safety, plumbing and electrical codes, and related regulations. *For this reason it is necessary that any barrier-free provisions which are developed be inserted into appropriate sections of all codes that determine building designs in a community.* A more detailed discussion of the role that building codes play in the construction process is available in, *Into the Mainstream: A Syllabus for a Barrier-Free Environment,* by Stephen A. Kliment (Washington, D. C.: The American Institute of Architects and the Rehabilitation Services Administration, United States Department of Health, Education, and Welfare, 1975). See reference 41, page 20.

Federal Laws

Momentum for making outdoor recreation facilities accessible dates back to 1963 in Public Law 88-29 which "...declares it desirable that all American people of present and future generations be assured adequate outdoor recreation resources and that it is desirable for all levels of government and private interest to take prompt and coordinated action..." (16) This law mandated that the Bureau of Outdoor Recreation (Department of the Interior) develop a Nationwide Outdoor Recreation Plan designed to guide Congress, all levels of government, and the private sector in forming and developing recreation programs. The Nationwide Plan developed by the Bureau states, "The special recreation needs of the mentally and physically handicapped are often overlooked in the planning and provision of recreation opportunities. Physically handicapped people frequently are prevented from utilizing outdoor recreation opportunities by construction features of buildings and facilities..." (16)

However, it has been alarming to note lack of real emphasis and concern for recreation programs and activities for impaired, disabled, and handicapped persons in the Nationwide Outdoor Recreation Plan. Coordinated efforts by consumer groups and professional providers of services have resulted in some additional attention to this segment of the population in later interpretations of this plan. Complicating this situation have been different interpretations of the intent and application of the Architectural Barriers Act of 1968 (see Appendix E) to recreation facilities. Shortly after this Act was enacted the Director of the Bureau of Outdoor Recreation sent a communication to his state counterparts stating that the Architectural Barriers Act did not apply to outdoor recreation facilities. More recently a bulletin was sent to state outdoor recreation personnel indicating that recreation facilities were included under the 1968 Act.

Testimonies by representatives of various governmental, consumer, and professional groups at a national hearing on recreation sponsored by the Architectural and Transportation Barriers Compliance Board in Boston in October, 1976, indicated that great variation existed in interpretation, implementation, and application of this Act in recreation programs of all types at all levels. Section 504 of the Rehabilitation Act should be a major force in changing these situations in that any program receiving federal funds must give assurances that no otherwise qualified handicapped person is discriminated against solely on the basis of his/her condition. Since many recreation departments and park boards receive federal funds, they will have to make sure that programs and activities are available to all impaired, disabled, and handicapped persons. A first step in this process is accessible facilities.

The Housing Act of 1974 provided a wide range of federal aid programs to help meet needs of appropriate housing for persons with various handicapping conditions. This Act required that ten percent of units in housing projects for elderly persons which have used federal funds or insurance be accessible to persons with physical impairments or disabilities. Authorizations under this Act made funds available for special recreation areas for the handicapped with swimming pools that accommodate wheelchairs or campgrounds, wooded trails, fishing and boating docks that provide barrier-free accessibility. (22)

Congress authorized in late 1965 a National Commission on Architectural Barriers to the Rehabilitation of the Handicapped. This Commission published its final report, *Design for All Americans*, in 1967. (See reference 17, page 15.) Legislative proposals subsequently passed by Congress as the Architectural Barriers Act of 1968 (Public Law 90-480) were developed by this Commission. This Act was written to ensure that public facilities built with federal funds were designed and constructed to be accessible to persons with physically handicapping conditions. PL 90-480 authorized the Administrator of the General Services Administration to prescribe standards for design, construction, and modification of buildings as deemed necessary to ensure their accessibility to and use by physically impaired and disabled persons.

Section 502 of the Rehabilitation Act of 1973 (Appendix E) established the Architectural and Transportation Barriers Compliance Board to ensure compliance with the Architectural Barriers Act of 1968. This Board is composed of nine heads of federal agencies and chaired by the Secretary of the Department of Health, Education, and Welfare. Powers of the Board include conducting investigations, holding public hearings, issuing such orders as it deems necessary to ensure compliance with accessibility requirements, and withholding or suspending federal funds to any building or facility found to be violating standards prescribed in the Architectural Barriers Act of 1968.

Civil rights of persons with handicapping conditions are protected by the anti-discrimination clause (Section 504) in the Rehabilitation Act of 1973 which prohibits discrimination against and denial of benefits to persons with handicapping conditions in *any* program or activity receiving federal financial assistance. Other sections of the Rehabilitation Act of 1973 (Public Law 93-112) relate to barriers in rehabilitation facilities. Barriers in educational facilities are also covered in the Education for All Handicapped Children Act of 1975 (Public Law 94-142).

For facilities to be truly accessible and usable, persons with handicapping conditions must be able to get to the facilities. Adequate and appropriate transportation is needed. The Urban Mass Transportation Act (UMTA) of 1964 was amended in 1970 by the Biaggi Amendment which called for barrier-free mass transit wherever federal funds were involved. Public Law 91-205 was geared to barrier-free mass transportation in the Metropolitan Washington, D. C., area.

Passage of the Tax Reform Act in September of 1976 provided an incentive for removal of architectural barriers. Section 1323 of this Act calls for an income tax deduction for costs of removing architectural and transportation barriers for handicapped and elderly persons. An elective current deduction for removal of barriers in any facility or public transportation vehicle owned or leased for use in a trade or business is also allowed.

State Laws

By 1974 all fifty states and the District of Columbia had required elimination of architectural barriers in public buildings through legislation, executive directives, or building codes. Most states have adopted the *American National Standards Institute (ANSI) Standards for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped* (see reference 8, page 12) or used it as a model. Great variations occur in the extent and means of enforcement and/or in agencies responsible for overseeing these laws in different states. Mandates that new buildings be inspected for compliance, sanctions for noncompliance, and applicability of these standards also vary greatly. For an analysis of data collected on architectural barriers laws and standards of the fifty states and the District of Columbia, refer to *Analysis of Collected Data on Legislation and Standards of 50 States and the District of Columbia Concerning Laws Requiring that Buildings and Facilities be Accessible to Handicapped Persons.* (21)

The National Center for Law and the Handicapped cautioned that the American National Standards Institute Standards or any other building code may not assure full architectural accessibility and, therefore, should not be accepted as final authorities. (13) Even full compliance with standards may not result in functional accessibility. Too often accessibility and functional use are interpreted synonymously when, in reality, this is not necessarily true. This re-emphasizes need to actively involve consumers--individuals with different handicapping conditions--in all aspects of this process, including planning, implementing, monitoring, and evaluating buildings themselves and all component parts in terms of both accessibility and functional use.

Although federal laws requiring that both new construction and renovated facilities using federal funds be accessible to persons with handicapping conditions have been on the books for almost ten years, they have not been strictly enforced; in too many places, there has been downright laxity in enforcement. Loopholes have enabled builders to get around requirements. Similarly, state laws have not been rigidly or conscientiously enforced. This non-verbal form of discrimination has effects that tend to perpetuate stereotyped attitudes and behavior towards persons with handicapping conditions. It also restricts such persons from participating in as full, meaningful, rewarding, and challenging lives as able-bodied individuals enjoy.

Architectural Accessibility Legislation: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137-140.

1. Access to America. Detroit, Michigan: Michigan Center for a Barrier-Free Environment (6522 Brush Street, 48202), n.d. 306 pp. $15.00

   A survey of federal and state legislation affecting persons with mobility limitations is presented. Major sections on architectural and transportation barriers, curb cuts, license plates, and polling places are included.

2. "Architectural Barriers Act Amended." Amicus 2:1: 2; December 1976.

   On October 18, 1976, President Gerald Ford signed into law Public Law 94-541, which amended the Architectural Barriers Act of 1968 to impose a clear statutory mandate that federal agencies named in the act insure that public buildings are made accessible to physically handicapped persons. This law states the federal government's responsibility for accessibility more forcefully and stringently than the old law. It provides that various cabinet officers shall prescribe standards for accessibility and that such standards shall be adequate to insure wherever possible that handicapped persons have access to, and use of these buildings. Buildings of the U. S. Postal Service are also covered by this amendment to the 1968 Federal Architectural Barriers Law.

3. Building for the Handicapped. Cambridge, Massachusetts: The Architects Collective (46 Brattle Street, 02138), n.d.

   This guide is intended for architects, builders, developers, administrators and others concerned with planning buildings and public spaces. Specific requirements of various state and federal agencies and jurisdictions are tabulated.

4. Design of Barrier-Free Facilities. Annapolis, Maryland: Maryland State Department of Economic and Community Development (2525 Riva Road, 21401), 1975. 8 pp.

   Reproduces section 05.01.07 of the Maryland Building Code for the handicapped and aged. Explanatory diagrams are included.

5. "Does Passing a Law Bring Benefits to Handicapped?" Accent on Living 16:3: 48-49; Winter 1971.

   Suggests that new state laws which promise benefits to persons with handicapping conditions may be practically worthless if not properly enforced. Support for such laws must not end when they are passed. Ways to encourage proper enforcement and compliance with such laws are oulined.

6. The Effectiveness of the Architectural Barriers Act of 1968 (Public Law 90-480). Hearings before the Subcommittee on Investigations and Review of the Committee on Public Works and Transportation, House of Representatives, 94th Congress First Session, October 7 and 20, 1975. Washington, D. C.: U. S. Government Printing Office (20402), 1976.

   Staff of the subcommittee on investigations and review of the Committee on Public Works and Transportation has concluded that a lack of dedication and enthusiasm restricts complete success for the Architectural Barriers Act. By 1974 all fifty states and the District of Columbia had, through legislation, executive directives, or building codes, required elimination of architectural barriers in public buildings. Yet in an inspection of 314 federally financed buildings or building plans in thirty-five states and the District of Columbia, it was found that the Architectural Barriers Act of 1968 had only a minor effect on making public buildings barrier free. Several language deficiencies have lessened effectiveness of the Architectural Barriers Act, and certain buildings were excluded in accessibility requirements.

7. Farber, Alan J. "The Handicapped Plead for Entrance--Will Anyone Answer?" Kentucky Law Journal 64:1: 99-113; 1975-76.

8. Gailis, Ann, and Keith M. Susman. "Abroad in the Land: Legal Strategies to Effectuate the Rights of the Physically Disabled." Georgetown Law Journal, 1506-1512; July 1973. (Reprinted with permission and available from the President's Committee on Employment of the Handicapped, Washington, D. C., 20210.)

Statement on accessibility to buildings and transportation with references to legislative and court decisions affecting changes for mobility problems of persons with handicapping conditions.

9. Graveley, John R. "Two Standards for Barrier-Free Design?" Achievement 7:1: 6; September 1975.

   Author questions wisdom of having two types of standards for barrier-free design. He favors a prescriptive type code that specifies exact requirements over a performance type code that gives the designer the liberty of choosing his/her own solutions. In his opinion, a performance-type code is more subject to opinions and misinterpretations than a prescriptive code. Creation of a new standard should be delayed until the upcoming revision of the present American National Standards Institute Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped is issued.

10. "GSA Awards Contract for Barrier-Free Study." Achievement 7:1: 8; September 1975.

    The United States General Services Administration awarded a $62,721 contract to Ezra D. Ehrenkrantz and Associates, a New York based architect-engineer firm. They are to develop a performance standard to make public buildings more accessible to physically handicapped persons. Performance rather than a prescriptive point of view is to be stressed.

11. "In the Courts." Amicus 2:2: 19; February 1977.

12. Leonard, Edmond J. "Egress: The U. S. View." Rehabilitation World 2:3: 6; Autumn 1976.

    Many employers are seriously viewing the safety adequacy of their buildings in light of recent federal legislation requiring affirmative action to employ persons with handicapping conditions. Several approaches to the problem of emergency exits for these individuals are discussed. The National Fire Protection Association recently assigned its Safety to Life Committee the task of developing a standard for the safe use of buildings where handicapped persons are present, with emphasis on a smoke free elevator to be used in evacuation. The draft of a proposed standard for protecting persons with handicapping conditions in emergencies is expected to be delivered by the committee within a year.

13. "NCLH Comments on Proposed DD Regulations." Amicus 2:1: 7-8; December 1976.

14. Nugent, Timothy J. Design of Buildings to Permit Their Use by the Physically Handicapped. Washington, D. C.: New Building Research, Building Research Institute, National Research Council, National Academy of Sciences (2101 Constitution Avenue, N. W., 20037), 1960.

15. The President's Committee on Employment of the Handicapped Committee on Barrier-Free Design. A Survey of State Laws to Remove Barriers. Washington, D. C.: the Committee (20210), August 1973.

This publication was developed to highlight prominent features of each state's architectural barriers law; i.e., information on legislation such as title, effective date, whether it adopts ANSI (American National Standards Institute) standards, if sanctions for noncompliance exist, types of buildings covered, and responsibility for enforcement. For more complete information about a particular state law, it is recommended that the Governor's Committee on Employment of the Handicapped of the involved state be contacted.

16. "Public Facilities: Legal Obligations." Trends, July/August/September 1974.

17. Snyder, Michael D., comp. Laws and Regulations for Barrier-Free Design. Manhattan, Kansas: Theraplan, Inc. (1536 Pipher Lane, 66502), 1976. 55 pp.

This publication serves as a summary guide of current U. S. State statutes and laws governing architectural barriers for disabled persons. In summarizing various state statutes, the following categories are discussed: (1) application--what buildings and facilities are under jurisdiction of the statute, (2) specifications and regulations--notes specifications and regulations adapted by the statute, (3) escape of waiver clauses--acquaints the reader with varying conditions that allow for exempting buildings and facilities within each statute, (4) special considerations--relates considerations referenced by each state that further enhance a barrier-free environment, and (5) enforcement--presents the agency or individual responsible for enforcement of each statute. A matrix format is used to signify buildings and facilities to which each state law applies, along with alternate facilities mentioned in the statute. Areas of consideration include transit systems, site development, exterior and interior building accessibility, comfort facilities, grade changes, and recreational areas. A brief bibliography is also included.

18. Sorkin, Nathaniel. "Equal Access to Equal Justice: A Civil Right for the Physically Handicapped." Case and Comment 78:2: 41-42; March-April 1974.

Argues that access is implicit in the concept of equality under the law and when public buildings are constructed so they are inaccessible, patent discrimination exists even though it may be unwillful and unwitting.

19. Standard Specifications for the Handicapped. Springfield, Illinois: Department of General Services, Office of Supervising Architect (705 State Office Building, 67206), n.d.

20. Sykes, Robert. "Housing and Community Development for the Handicapped." *HUD Challenge*, 6-7; March 1975. Washington, D. C.: U. S. Department of Housing and Urban Development.

21. Syracuse University, School of Architecture. *Analysis of Collected Data on Legislation and Standards of 50 States and the District of of Columbia Concerning Laws Requiring that Buildings be Accessible to Handicapped Persons*. Washington, D. C.: President's Committee on Employment of the Handicapped, 1975.

22. "Tax Benefit for Access Revamp Passed." *Paraplegia News* 29:338: 14; November 1976.

    The Tax Reform Act of 1976, HR 10612, was passed on September 29, 1976. Section 1323 provides for deduction of the cost of removing architectural and transportation barriers for handicapped and elderly persons. It provides an elective current deduction for removal of barriers in any facility or public transportation vehicle owned or leased for use in a trade or business.

23. Williams, Robert A. L. *Graphic Illustrations of Michigan Construction Code Commission "General Rules" Applicable to Making Facilities Accessible for Use by the Physically Handicapped and Aged*. Lansing, Michigan: Michigan Commission on Employment of the Handicapped, Committee for a Barrier-Free Environment, 1975.

    Reprints *General Rules* of the Michigan Department of Labor's Construction Code Commission and provides assistance in clarifying intent of these rules. Included are specifications for off-street parking, interior access, elevators, plumbing fixtures, checkout lanes, and many other areas and facilities.

PHYSICAL EDUCATION AND RECREATION FACILITIES

Physical Education Facilities

Types of students served, student and program objectives, school and physical organizational/educational patterns, school and system philosophies all influence facility and equipment needs for physical education programs. A variety of patterns and approaches have been found necessary and used successfully to obtain physical education facilities for impaired, disabled, and handicapped students in school districts around the country. Many of these procedures reflect categorical approaches and emphasize separating special populations from their classmates in virtually all activities. For example:

- Elementary school students are taken to special centers for instruction in adapted physical education.
- Visiting or resource teachers are scheduled on an itinerant basis to meet needs of children with special physical, motor, or perceptual-motor problems throughout a district or system.
- Mobile units especially designed and equipped for adapted physical education enable teachers to travel from school to school to serve students in need of special services.
- Elementary school children are scheduled for adapted physical education at a nearby secondary school for programs conducted by an adapted physical education specialist.

With current trends emphasizing integration or mainstreaming of impaired, disabled, and handicapped students with their classmates, greater attention to and emphasis on basic accessibility of all physical education facilities are needed. As with other kinds of activities, keys for physical education are in making sure that gymnasiums, locker and shower rooms, courts of various types, and other indoor areas are accessible; outdoor facilities cannot be ignored and must also be given special attention. The same basic factors necessary to make any facility accessible must be considered for physical education spaces.

As in other areas, needs for special physical education facilities are often created by barriers, inaccessibility, and unavailability of regular facilities. With emphasis on both physical education and mainstreaming in the Education for All Handicapped Children Act and Section 504 of the Rehabilitation Act, basic accessibility of physical education facilities is going to be of even greater concern and importance. These factors are far more crucial than over emphasis on separate facilities and special adaptations for specific activities.

Despite current trends, not every student can safely, successfully, and with personal satisfaction take part in all regular physical education activities. Just as all impaired, disabled, and handicapped students do not need special provisions for physical education, some so called *normal* children need special provisions. Not everyone requiring adapted physical education has to be separated from classmates or use special facilities.* However, needs of some students may necessitate incorporation of special facilities for adapted physical education.

Adapted Physical Education Facilities

Special adapted physical education facilities are usually more widespread in secondary schools and colleges than in elementary schools. At least one room should be provided for adapted exercise and activities in each school at secondary and college levels. Although separate facilities for boys and girls may still be available in some schools, adapted physical education classes should be coeducational. Room size for adapted physical education depends on the philosophy adhered to in each school and district. Since students have individualized programs, fewer students can be handled than in regular physical education classes. Specialized equipment that takes up a considerable amount of floor, wall, and ceiling space must be accommodated. A free exercise area for activities that does not involve use of this equipment is also needed. According to Swisher and the Committee on Evaluative Criteria for Facilities of the California Fitness Project, the minimum size of an adapted physical education room for a secondary school should be forty by sixty feet if the room is limited to use of adapted classes. (4) If the room is used as a multipurpose facility for certain activities of regular physical education classes, more space is needed.

Although parquet flooring has been used in some instances, a regular spring construction hardwood floor is preferred. Walls should be of material that resists scarring and marking and provides for mounting of specialized equipment. Celings can be of acoustical tile if ball games are not played in the room. Doorways leading to the room should be extra wide and either be flush with the floor or have ramps leading to outdoor areas. Other facility characteristics should include:

- Good ventilation, heat, and light.
- Adequate clear wall space for mounting equipment and placing charts.
- Warm, clean floors.
- Adequate equipment storage space in or adjacent to adapted area.
- Availability of outdoor play areas.

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*See *Adapted Physical Education Guidelines: Theory and Practice for the Seventies and Eighties* (Washington, D. C.: American Alliance for Health, Physical Education, and Recreation, 1976) for detailed discussions of organizational patterns and factors related to emerging concepts and for adapted physical education practices.

- Accessibility to dressing and showering areas.
- Ceiling high enough for placement and use of apparatus. (1)

Many* extensive and expensive special facilities are unnecessary. Participants want to take part in programs conducted in facilities that are not different from those used by their peers and contemporaries. *Basic accessibility* is the key to use by even the most severely and multiply involved persons. So many of the most practical, functional, and realistic adaptations have been initiated by consumers themselves. *Consumers must be involved*--we must listen and heed what they say.

Realistically some special provisions in facilities, equipment, and supplies may have to be made in some situations for adapted physical education. However, schools without special facilities, equipment, and supplies can initiate and carry on quality adapted physical education programs if personnel responsible for physical education are resourceful, original, and creative. While meeting immediate needs of students with innovative and inventive approaches, the staff can work with administrators, supervisors, parent groups, and interested professionals to obtain desired facilities, needed equipment, and adequate supplies. Some outstanding adapted physical education programs in the nation started on financial and facility shoestrings with no special room or place to call their own. Interested and dedicated instructors saw the need, carried the ball, and wouldn't take no for an answer--from humble beginnings have come outstanding programs in which education for all is exemplified.

Many schools, elementary as well as secondary, make provisions for adapted physical education with special rooms in new buildings and with special additions to existing facilities. Physical educators increasingly are asked to design special facilities for adapted physical education and to recommend equipment and supplies for outfitting these facilities. Therefore, physical educators should study and evaluate carefully the school population to determine conditions which are to be served through the adapted physical education program so facilities, equipment, and devices best suited to meet specific student needs can be recommended. Not all special items of equipment and supplies have to be obtained at once since needs of the current population should influence decisions regarding immediate priorities. Implications of full service programs for all students in least restrictive environments must also be considered when selecting equipment and supplies for these programs. Additional items can be added in subsequent years as populations needs change and different kinds of equipment and supplies are required.**

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*Much of the remaining portions of this chapter have been extracted from *Adapted Physical Education Guidelines: Theory and Practice for the Seventies and Eighties* referred to in the footnote on page 38.

**See Appendix C for a listing of suppliers of equipment for physical education and recreation facilities.

Additional factors which must be considered in equipping an adapted physical education facility include:

- *School level*--elementary, intermediate/middle, junior high, senior high, college or university;
- *Setting*--public school, private school, residential facility, day care center, hospital, special facility;
- *Background training* and experience of personnel available to conduct the program, school;
- *System philosophy* regarding integrating or mainstreaming these students in regular classes;
- *Funds available;*
- *Administrative support* for the program;
- *Medical cooperation* for the program.

While the adapted physical education program cannot and should not be compromised, many personnel are confronted with having to make a decision between no program until appropriate facilities and sufficient equipment and supplies can be obtained and an immediate program with what is available in the way of these necessities. Judicious planning in which existing facilities and materials are used optimally will help get a program underway. Consideration should be given to utilizing multi-station gym units in these programs. Several stations are available in a limited area so a great deal of flexibility can be established in the program whatever its organizational pattern or structure. The versatility of these units makes them more economical than actual dollar and cents cost.

In addition, a creative and innovative instructor will find ways to improvise and construct other needed items of equipment along with specific pieces designed to meet unique needs of certain students. This process is needed even in a well equipped program since every instructor at one time or another is confronted with a youngster whose condition is such that neither conventional equipment nor usual modifications and adaptations will suffice. Here is where inspiration and need are truly the mother of invention.

Recreation Facilities

Recreation programs are conducted in numerous types of settings and facilities. Schools, churches, clubs, and other community facilities are almost as likely to house recreation programs as the community recreation center. By law (Architectural Barriers Act of 1968, Public Law 90-480, reprinted in Appendix E), these facilities must be accessible to all persons if they are owned or leased by the U. S. Government or if they are financed in whole or part by the U. S. government.

Numerous facilities--and recreation facilities are no exception--do not comply with Public Law 90-480. Recreation administrators and personnel give many reasons for their noncompliance, most of which stem from the basic attitude that handicapped individuals are not part of the *public* and are, therefore, not automatically included in public recreation programs. This, of course, is a fallacy, especially at a time when equal rights for handicapped individuals are being reaffirmed by such legislation as the Education for All Handicapped Children Act (Public Law 94-142) and Section 504 of the Rehabilitation Act (Public Law 93-112). In truth, it is public recreation agencies that should assume primary responsibility for programing that includes handicapped individuals.

Recreation personnel, traditionally the first to suffer budget cuts when treasuries dwindle, are also sensitive to the cost of including handicapped individuals in recreation programs. Removal of architectural barriers does cost money. However, as discussed in more detail in Chapter One, removal of barriers during a renovation can add as little as three to four percent to the cost of renovation, and when facility designs are altered *from the start* to eliminate barriers, only one-tenth to one percent will be added to building costs. Considering the number of individuals who will be able to use barrier-free buildings, these are small costs indeed. At this point, it is imperative that recreation personnel remember that if they receive federal funds, they have *no choice* in the matter of removing barriers.

A National Hearing on Recreation for Handicapped Persons was held in conjunction with the National Recreation and Park Association Congress in Boston, Massachusetts, on October 21-22, 1976. Conducted by the Architectural and Transportation Barriers Compliance Board, the hearing was held to gather information which would contribute to the adequate planning and provision of recreation programs and facilities that can be shared by all Americans, including those with severe, profound, and multiple conditions. There was general agreement among consumers and providers of services who attended the Hearing that tough enforcement of Public Law 90-480 is needed to ensure accessibility of recreation facilities. Unfortunately, representatives of federal agencies argued in favor of less stringent interpretation of the law, especially in the case of outdoor recreation facilities.

This points out a basic problem in assuring compliance with Public Law 90-480. If people at the top do not see the need for enforcement, personnel actually providing services may not grasp the necessity of removing architectural barriers from their facilities. Even agencies not receiving federal funds should be considering removing architectural barriers, simply from the standpoint of providing equal access to programs, but for agencies getting federal monies removal of barriers is imperative.

There is plenty of information available for getting help in complying with Public Law 90-480. In general, the standards for buildings set forth in the American National Standards Institute (ANSI) publication, *Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped,* can be applied to recreation centers. These standards are currently in the final stages of being revised and updated at Syracuse University and should become available by mid-1977. (See reference number 8, page 12 for further information on the standards.) The extensive bibliography following Chapter One (pages 11 to 26) also contains many sources describing removal of architectural barriers, based on the ANSI standards. Readers should consult the Examples of Accessible Recreation Facilities beginning on this page for ideas used by other recreation personnel in making their facilities accessible. Although some facilities noted or described are segregated, planners should consider that handicapped individuals may not want a segregated recreation facility and money might be better spent in making existing facilities accessible to all.

Examples of Accessible Recreation Facilities

Recreation Center for the Handicapped
207 Skyline Boulevard
San Francisco, California, 94132

During twenty-four years of operating community recreation programs for severely handicapped and retarded persons, the Recreation Center for the Handicapped has demonstrated that recreation activities of all types can act as a stimulus for greater learning, improved mental and physical health, and for greater self-realization and social development among all impaired, disabled, and handicapped persons. Of the 750 children served by the Center during the past ten years, 550 of these children have improved sufficiently in physical, social, emotional and self-help skills and general maturation to be accepted in City schools for the retarded or in special classes in regular schools. In some dramatic instances, some have been enrolled in regular classes in regular schools. Of 800 teens, young adults, and older adults who were returned to live in foster care homes in the community from state institutions, to date 203 have developed sufficiently in self-confidence and in social and self-help skills to *graduate* from the Center into the municipal recreation and park programs.

Current enrollment is 1500 individuals ranging from infants through elderly from the San Francisco Bay area and some additional surrounding counties. The majority are individuals with multiple conditions. A wide range of indoor and outdoor activities are offered in the Center and throughout the community. Participants are encouraged to select and plan their own activities as much as possible.

It has been the experience of the Center staff that most recreation resources in the community can be used for severely handicapped individuals with some adaptations. Even multi-handicapped bedfast individuals can use and enjoy regular community recreation and park facilities as well as camping in outdoor areas if transportation, sufficient staff and volunteers are provided. For twenty years the Center successfully used a facility which was originally built as a restaurant to accommodate San Francisco's famous, largest outdoor swimming pool, known as Fleishhacker Pool. The Building, loaned by the San Francisco Recreation and Park Department, was built on two levels. Center staff members were able to convert it into a very usable area even for bedfast persons merely by installing ramps, grab bars, and easily opened doors wide enough for wheelchairs. The top floor consisted of two large social halls, a stage, library, kitchen cooking area, and four activity rooms. The basement area was utilized by connecting a long ramp to the top floor by an opening in the wall which was used for wheelchairs and gurneys. The large area which had been used originally for locker rooms was then converted into six activity rooms with additional space for gymnasium and a portable swimming pool. As the Center continued to expand, even these additional areas could not accommodate the large numbers of severely handicapped persons in need of services and the necessity for larger facilities was clearly indicated. The construction of a new Center was a partial solution. However, while the new Center was still under construction, the staff found that satellite or Outreach programing could reduce need for additional facilities and transportation and serve large numbers of handicapped participants at a low cost by continuing programs in homes, neighborhood facilities, social halls, recreation rooms, YM/YWCA and youth clubs, and recreation and park facilities.

The majority of programs are now conducted in specially designed facilities located on a wooded five and one-half acre site. The single story building eliminates architectural barriers. Corridors and doorways are wide enough to accommodate wheelchairs. Water fountains and public telephones are all wheelchair height. All toilets are adapted with wide doors and grab bars, and in the day care wing all facilities are child-sized. Wall surfaces, floors and furnishings are washable for easy maintenance. Doors are color coded so that those who cannot read can identify facilities such as toilets, activity rooms, offices, and exits. In the day care area, floors are heated for small children. All rooms throughout the building have floor-to-ceiling windows for ample light and visibility. A large swimming pool complex is 12,000 square feet in the interior. The pool itself is 25 feet wide and 75 feet long and has a ramp at one end for wheelchairs and gurneys. Another special feature is a wading pool area with steps for teaching tiny tots to swim. The pool is designed so that water can be kept at a comfortable 80 to 90 degress for therapeutic swimming. Primary exterior doors in both the main and pool buildings are operated automatically for wheelchair accessibility.

Sports Complex for the Handicapped
The 52 Association
Ossining, New York, 10562

The 52 Association, Inc. is a non-profit organization for veterans formed by fifty-two New York businessmen at the end of World War II. The 52 Recreation Center in Ossining, New York, is the former Samuel H. Kress estate. The forty-one acre estate and five-acre lake were acquired by the Association in 1959, as a gift, and were then converted into a specially adapted recreation facility. Some of the specially constructed features which were added include wheelchair ramps leading down to the lake which enable occupants to enter and exit from the water totally unassisted, and low-built barbecue pits, also for use by wheelchair occupants.

The 52 Association, with an eye towards the future, realized need for more challenging sports and recreational activities on a year-round basis. Consequently a *Sports Complex for the Handicapped* was developed to introduce a totally new concept of sporting and recreational activities for physically handicapped veterans over and above that currently available through existing programs. Some of the new facilities and activities available include a concrete bicycle path circling the lake, with tandem bikes for blinded veterans; horseback riding for amputees, with special equipment for mounting and dismounting; newly acquired paddle boats for paraplegics and amputees; arrival of sail boats in addition to the older row boats; and newly paved wheelchair basketball and volley ball courts. Guests can also enjoy the usual fishing, swimming, archery, ping pong, and other recreational activities.

Brooklyn Children's Museum
145 Brooklyn Avenue
Brooklyn, New York, 11213

When it first opened in 1899, the Brooklyn Children's Museum was the first facility of its kind in the world. It was located in two Victorian Mansions in Brower Park in New York City until 1968. Now the museum is again located in Brower Park, sunk forty feet into the ground with park landscape on top of it. A first look at the building makes it appear to be inaccessible with a long series of steps descending forty feet from the roof. However, a 200-foot ramp enclosed in a steel water culvert runs diagonally across the whole area from the main entrance just beneath the roof to a sunken outdoor courtyard. A stream with water wheel, swing gate, sluiceway, and a pool for water play flows along one side of the culvert. The ramp is designed particularly for children with impaired mobility and has ample clearance for wheelchairs. Access to other environments is provided by a landing across the stream at each level; levels are also served by an elevator. In an effort to integrate physical and environmental sciences with culture and the arts, a participatory learning environment was created--a system of exhibits, tools and artifacts displayed in ways that their use is obvious even though experimentation is encouraged. Handrails throughout the main exhibit area serve as a tactile mapping system for all children. Manual communication symbols used by deaf persons are represented graphically throughout the building, and nine staff members have studied sign language.

The Mary Duke Biddle Gallery
North Carolina Museum of Art
Raleigh, North Carolina, 27611

This gallery was opened in 1966 as the first in a series of American tactile art galleries for blind persons. A special braille handrail leads visitors through three rooms of constantly changing displays. A permanent collection of busts of famous people introduces visitors to celebrities they have heard about previously. Sculptures with various textures describe different techniques and finishes. Brightly colored paintings under high intensity lighting stimulate use of residual vision since only ten percent of visually impaired persons are totally blind. Success of the gallery was so great that the museum opened to all visitors with as many as 10,000 visits a month being logged.

The Rainbow Fleet
Creative Education Laboratory
P. O. Box 20390
Oklahoma City, Oklahoma, 73120

The Rainbow Fleet is the mobile unit of the Creative Education Laboratory, a joint project of Oklahoma City University and the Arts Council of Oklahoma City. This three-bus fleet of stretch vans offers continuing support and stimulation to parents of children with handicapping conditions and to early childhood education programs serving low-income families. Two basic services are offered by the three buses--a continuing inservice training program for adult teachers and childcare workers, and an environmental enrichment program for homes and schools of children. Quality art and educational materials are loaned from the vans. Each bus carries similar materials--library books, art materials, tape cassettes of musical programs, and educational materials. The three vans are geared to different clientele--buses serve children who are blind, deaf, or mentally retarded. The program is designed to catch and screen children at the earliest level in order to develop language and perceptual abilities in the arts at the developmental stage of their lives.

The Joseph H. Cole Recreation Center
31st and G Streets, S. E.
Washington, D. C., 20019

The architects' task in designing this facility was to create a building that *looked* like a place for recreation but that would be secure from vandalism. They devised a building with a central, enclosed court, clerestory glass at all walls, skylights, and unencumbered views from all rooms; where outside glass occurs at low levels, roll-up doors are provided for nighttime protection.

Steps have been eliminated from the design; even in shower areas and outside doors, all sills are flush. Curbs have also been totally eliminated. To distinguish between pedestrian and automobile traffic areas, low poles are sunk into the pavement, spaced far enough apart to allow wheelchair access but too close for automotive passage.

A number of additional design modifications contribute to the Center's accessibility. Lowered sinks, electric switches, mirrors, drinking fountains, and other wall-mounted items, wrist action handles on drinking fountains, and oversized toilet stalls with grab bars are some of these modifications. All public doors are color coded, in addition to being identified by signs, to assist those who cannot read or count. Full door width push/pull bars are mounted on both sides of doors to simplify entrance for all individuals. Where automatic door closers have been provided for fire code purposes, delayed action timers are used to give wheelchair users ample time to pass through the door before closing.

Access to the facility itself is simplified by lack of curbs. A canopy is located adjacent to the building for protection from inclement weather during car and bus loading/unloading. Pavement texture and color serve as signals to mentally retarded or blind individuals that they may be entering a traffic or other danger zone.

Program and activity areas are responsive to the needs of participants. For example, small-scale retreat areas are provided for mentally retarded or emotionally disturbed individuals who need the occasional security of a small space, and these are also convenient for quiet conversations; each large activity area has at least two small areas adjacent to it. All outdoor sport areas were designed with wheelchair users in mind, and these areas are interconnected by a continuous pathyway system. The Center's centralized enclosed court area acts as a social mixing bowl and, because adjacent activity areas have windows, allows preview time for individuals hesitant to enter an activity.

The swimming pool is reached by a ramp from the deck into the pool. The floor of the pool has a minimum slope from 2'6" to 3' so that wheelchair users with additional muscular disabilities in hands and arms cannot roll by the force of gravity into water over their heads. A deep water alcove for special training is protected from shallow areas by under water railing. It is protected from stumbles on the deck by a continuous bench which also serves as a wheelchair transfer point into the deeper water.

Physical Education Facilities: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137-140.

1. Adapted Physical Education Guide for Secondary Schools. Fairfax, Virginia: Fairfax County Public Schools (10700 Page Avenue, 22030), March 1972.

   Information on objectives, organizations, and administration of adapted physical education programs at the secondary school level is provided. Special section contains considerations for facility and equipment selection. Equipment is classified according to the following types: modified, remedial, optional, and recreational games.

2. Aitken, Margaret H. Play Environments for Children: Play Space, Improvised Equipment, and Facilities. Bellingham, Washington: Educational Designs and Consultants (3254 North Shore Road), 1972.

This book contains recommendations for constructing facilities and equipment for elementary school physical education. General suggestions for indoor and outdoor play areas and ancillary physical education facilities are presented. Suggestions for construction of handmade and improvised equipment for activities are included along with a list of commercial sources from which school districts can purchase equipment or obtain information about facilities.

3. American Association (now Alliance) for Health, Physical Education, and Recreation. Dressing Rooms and Related Service Facilities for Physical Education, Athletics, and Recreation. Washington, D. C.: the Alliance (1201 Sixteenth Street, N. W., 20036), 1972.

   This publication identifies significant considerations in planning dressing rooms, locker rooms, and related service facilities. Comprehensive treatment of each aspect has not been attempted. Used in conjunction with listed references and up-to-date information available from architects, this material should provide a sound foundation for planning these facilities.

4. Arnheim, Daniel; David Auxter; and Walter C. Crowe. Principles and Methods of Adapted Physical Education. St. Louis, Missouri: C. V. Mosby, 1969.

   Chapter on facilities and equipment for adapted physical education programs describes suggested facilities for elementary and secondary schools and college levels.

5. Coates, Edward. "The Role of the Physical Educator in Facility Planning." The Physical Educator 28: 74; May 1971.

   Provides nine guiding principles for constructing physical education facilities and guidelines to follow in initial planning stages. Common mistakes that are found after buildings and areas are operational are listed. Physical educators are urged to become involved in facility planning.

6. McAvaddy, Jim. Facility Consideration for Handicapped Intramural Participants. Edison, New Jersey: Middlesex County College, 1973. Available from IRUC in Xerox, $.90. Item number 1156.

   This is an extension and expansion of a paper (*An Adaptive Program for Intramurals*) presented by the author at the 1972 annual conference of the National Intramural Association. This presentation deals specifically with planning new facilities or restructuring existing buildings so that they are accessible and can be used in intramural recreational programs and activities for all students, including those who are impaired, disabled, or handicapped. Discussion is presented about limitations typically found among individuals who have difficulties in walking, seeing and/or hearing, using hands and/or arms, and understanding information, directions, and warnings.

Specific information and suggestions are provided about general accessibility, such as parking, walks, ramps, stairs, doors and doorways, and door hardware, toilet facilities, swimming pools, locker rooms, changing areas, showers, and miscellaneous facilities (telephones, food service, and drinking fountains). Throughout this presentation focus is on need, responsibility, and obligation to provide intramural/leisure/recreational opportunities for everyone.

7. National Industrial Recreation Association. Standard Sports Arenas for Industrial School, Private, Military and Public Recreation Leaders. Chicago, Illinois: the Association (20 North Wacker Drive, 60606), 1968.

   This reference book contains official dimensions for most games played on courts or fields.

8. Penman, Kenneth A. Planning Physical Education and Athletic Facilities in Schools. New York, New York: John Wiley and Sons (605 Third Avenue, 10016), 1977.

   This book is primarily designed for a course in planning physical education and athletic facilities and as a supplementary textbook for administration courses. Skills necessary for designing and planning facilities are illustrated and need for effective communication between planners and users is stressed. Elementary school through college facilities are covered, with emphasis on those in public schools. Appendices contain a list of selected journals with articles on physical education and athletic facilities and associations related to school construction.

9. Physical Education and Recreation for the Handicapped: Information and Research Utilization Center. Adapted Physical Education Guidelines: Theory and Practice for the Seventies and Eighties. Washington, D. C.: American Alliance for Health, Physical Education, and Recreation (1201 Sixteenth Street, N. W., 20036), 1976.

   A brief overview of adapted physical education is presented at the beginning of this guide. The rest of the publication is devoted to administrative considerations for planning and implementing adapted physical education programs. These include such areas as organizational patterns; personnel; facilities, equipment, and supplies; classifying students; referral, evaluation, and records; and public relations, community awareness, and education.

10. Planning Areas and Facilities for Health, Physical Education, and Recreation. Chicago, Illinois: The Athletic Institute (705 Merchandise Mart, 60654); and Washington, D. C.: American Alliance for Health, Physical Education, and Recreation (1201 Sixteenth Street, N. W., 20036), 1965.

    Basic information for planning the following types of areas and facilities is given: outdoor, indoor, aquatics, and health and safety.

11. Planning Facilities for Athletics, Physical Education and Recreation, revised edition. Chicago, Illinois: The Athletic Institute (705 Merchandise Mart, 60654); and Washington, D. C.: American Alliance for Health, Physical Education, and Recreation (1201 Sixteenth Street, N. W., 20036), 1974.

Basic concepts involved in planning the following types of areas and facilities are presented: indoor, sport and athletic, recreation and park, and swimming pools. The 1961 *American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by the Physically Handicapped* are reprinted in the chapter on specific construction features for the handicapped.

12. Sport for All: Low Cost Sports Halls. Strasbourg, France: Council for Cultural Cooperation, Council of Europe, 1972. United States Sales Office: Manhattan Publishing Company, 225 Lafayette Street, New York, New York, 10012.

Sport for All is a new concept which should serve to improve living conditions in society by (1) helping free individuals from isolation, and (2) giving individuals opportunities for creativity and self-expression in play. This publication presents advantages of multi-purpose sports and recreational facilities. Socio-cultural, technical and economic aspects of designing and constructing sports and recreation facilities are discussed.

13. Walter, Felix. Sports Centers and Swimming Pools: A Study of Their Design with Particular Reference to the Needs of the Physically Disabled. Thistle Foundation, 1971. Available from The Disabled Living Foundation, 346 Kensington High Street, London, W.14, England.

Centers in Britain, Finland, Norway, and Sweden were visited for this study. Planning and design modifications that would help disabled persons to participate in or watch recreational activities are specified.

Recreation Facilities: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137-140.

1. "An Art Gallery for the Blind." Programs for the Handicapped 75:8: 11-13; December 30, 1975.

Describes techniques used at the Mary Duke Biddle Tactual Art Gallery (Raleigh, North Carolina) which is designed so that visually impaired persons can visit independently, touch art objects and discuss their meaning and place in the history and development of culture. The importance of considering all groups in program planning is stressed.

2. Arts and the Handicapped: An Issue of Access. A Report from Educational Facilities Laboratories and the National Endowment for the Arts. New York, New York: Educational Facilities Laboratories (850 Third Avenue, 10022), November 1975. 79 pp. $4.00.

Accessibility to the arts implies removal of barriers that hinder or exclude potential patrons, such as architectural barriers (curbs, stairs, too-high telephones) and attitudinal barriers (inflexible admission requirements, insurance restrictions, preconceived notions about the safety or desirability of involving handicapped persons). This book reports on people, programs, and facilities developing solutions to the barriers that hinder participation of handicapped persons in cultural experiences. Sections of the book include: (1) innovative designs in art centers, (2) resources concerning legal implications of barriers, (3) incentives for removal of barriers (financial and technical assistance), (4) exhibits for visually impaired patrons, (5) museum education for handicapped patrons, (6) bringing art into already accessible and centralized community facilities, (7) art centers in public schools, (8) college programs in the arts that are accessible to handicapped students, (9) art facilities in special schools, (10) other community art centers, and (11) interagency cooperation to promote arts for handicapped individuals. Each section describes actual programs, facilities, and resources illustrative of the topic under consideration. Nature centers and trails, botanical gardens, resource organizations, and publications are listed in the appendices. Over 130 facilities and programs are described.

3. Ashton, Dudley, and Charlotte Irey. Dance Facilities. Washington, D. C.: Council for Facilities, Equipment, and Supplies, American Alliance for Health, Physical Education, and Recreation (1201 Sixteenth Street, N. W., 20036), 1972.

4. Austin, Richard. Design of Recreation Facilities for Special Populations. Lawrence, Kansas: Independent Study, Division of Continuing Education, The University of Kansas (66045). $3.00.

This is the course instruction manual for a new correspondence course of the same title at the University of Kansas. Specific guidelines for constructing recreation facilities for persons with special needs are covered and layout diagrams are included.

5. B.C.M. (brochure). New York, New York: Saville Design (218 Madison Avenue, 10016), November 1975.

History and development of the Brooklyn Children's Museum are detailed and illustrated in this brochure.

6. Beal, Andrea N. Outreach. (Narration of slide presentation and discussion of the use of the total community as a "recreation center." Mini Workshop-Community Participation and Experience for Special Groups through Recreation. Presented at Massachusetts AAHPER Convention, May 21-22, 1974. Available from IRUC, 1201 Sixteenth Street, N. W., Washington, D. C., 20036, in xerox $1.10. Item number 288.

The Outreach Program of the Recreation Center for the Handicapped began in October, 1970, to serve severely handicapped individuals unable to participate in existing community recreation programs. Participants currently enrolled represent approximately 200 mentally and physically impaired individuals ranging from infants to adults in their eighties. This narration describes the eight major areas of debilitation which characterize the present enrollment and details development of program activities during the 1970-1974 period. Benefits of a mobile program which uses the community and all of its facilities as the recreation center are also mentioned.

7. "A Capitol Idea." Performance 37:2: 2-5; August 1976.

   Describes efforts to make Washington, D. C., accessible for Bicentennial tourists. The subway system and the Information Center for Handicapped Individuals are briefly discussed. The Smithsonian Institution has adapted many of its buildings for use by persons with handicapping conditions and aims to integrate them into existing programs. It is assumed that these tourists can operate independently with small amount of assistance.

8. "Disney World Access Described by Wheelers." Paraplegia News 25:286: 6; June 1972.

   At the time of its opening, Disney World officials stated that in their opinion the complex was *ninety percent accessible*. Early reports by wheelchair users indicated some differences of opinion on the facility's accessibility. Results of a general survey of the relative accessibility of Disney World are discussed.

9. Gordon, John E. Guide to Recreational Facilities in Philadelphia for Developmentally Disabled Persons. Philadelphia, Pennsylvania: Temple University, Krusen Center for Research and Engineering, Moss Rehabilitation Hospital (12th and Tabor Road, 19141), 1974.

10. Horton, Muriel. "Usability and the Arts." Performance 27:1: 9-11; July 1976.

    Discusses the growing trend among museums, art programs, centers, and services to make the arts accessible to all people.

11. Kenney, Alice P. "Museums from a Wheelchair." Museum News 53:4: 14-17; December 1974.

    Structural modifications needed in museums to increase mobility of persons with handicapping conditions are mentioned. It is suggested that museum employees tour their museums in wheelchairs to experience how the museum looks from this perspective. Historic houses and museum villages are also discussed from the standpoint of barriers.

12. The Kent Cooper Partnership, Architects. Architect's Notes on Design Considerations for the Disabled at The Joseph H. Cole Recreation Center. Washington, D. C.: the Architects (3203 Grace, N. W., 20007).

The Joseph H. Cole Recreation Center for the Handicapped in Washington, D. C., opened on schedule early in 1977. Architects cite the primary design problem as one of creating a building for recreation, variety, challenge, surprise, delight, sunlight, interesting forms and informal character, while providing a facility that could be secured against extreme vandalism problems. Attention given to accessibility, automobile and bus unloading, retreat space, miniature golf, and other special design features is detailed.

13. Patrick, George D. Obtaining Use of Community Facilities for Special Populations. (Paper presented at the Southern Regional Workshop of the Illinois Therapeutic Recreation Society at Little Grassy Camp, Carbondale, Illinois, September 28, 1973.) 9 pp. Available from IRUC in xerox $.90. Item number 303.

Use of community resources is a key aspect of therapeutic activity programing. This paper details several steps involved in planning and organizing community field trips and in dealing with administrators and community resource managers. Two types of resources available to therapeutic recreation workers--public access and negotiated access--are discussed. A checklist for the negotiation process and a list of possible community resources are included. A discussion of the problem of transportation concludes the paper.

14. Recreation Center for the Handicapped, Inc. Specifics and Considerations for the Construction of a Recreation Center for the Handicapped. San Francisco, California: the Center (207 Skyline Boulevard, 94132), March 1975.

This publication outlines important steps and considerations involved in planning a recreation center to accommodate persons with handicapping conditions.

15. Recreation for All. Atlanta, Georgia: Georgia Department of Natural Resources, Office of Planning and Research (1260 Briarcliff Road, N. E.), September 1976.

This manual is dedicated to the objective of making Georgia's parks and recreation facilities available to everyone. Although this publication is geared to the process of planning and developing new parks and recreation facilities, many of the recommendations can serve as bases for adapting existing parks and facilities. Information can be drawn from this manual to make recreation facilities and spaces barrier free. Discrete chapters provide general data and information about site conditions and guidelines for vehicular circulation, pedestrian circulation, recreation facilities, children's play areas, buildings and utilities, and furnishings. Illustrations, diagrams, and charts supplement and complement written material in practical, graphic ways.

16. Ries, Michael L. "Specifications for Recreation Facilities." Design Standards to Accommodate People with Physical Disabilities in Park and Open Space Planning. Madison, Wisconsin: Recreation Resources Center, University of Wisconsin-Extension (1815 University Avenue, 53706), 1973.

Design criteria are presented for such recreation areas and facilities as swimming beaches, swimming pools, pier and shore fishing areas, water front docks, open fields and hard surface spaces, and game areas.

17. Technical Assistance Information Centers and Consultants: Materials from the National Arts and the Handicapped Information Service. New York, New York: ARTS (Box 2040, Grand Central Station, 10017).

This report gives information on free or low cost professional advisory services provided by telephone, mail, or personal visit. Publications that list federal technical assistance programs for the arts and for persons with handicapping conditions are listed and described. Sources of state and local technical assistance programs for persons with handicapping conditions are also given.

18. Tole, Dove. "Should Museums Serve the Visually Handicapped?" The New Outlook for the Blind 69:10: 461-66; December 1975.

The National Museum of Natural History of the Smithsonian Institution undertook a project to determine what could be done to enable visually impaired persons to benefit from the museum's resources. Programs currently of interest to blind persons were advertised, with maps of touchable objects throughout the museum made available. In addition, books about the museum have been brailled, cassette tours of individual halls prepared, exhibit designers encouraged to include more touchable objects in displays, and docents given special training in how to relate to and guide blind persons. Further sources of information are included at the end of the article.

19. The Wheelabout Garden: As Easter Seal Society Exhibit. Chicago, Illinois: The National Easter Seal Society for Crippled Children and Adults (2033 West Ogden Avenue, 60612). 4 pp.

Wheelchair gardeners can do more work with less effort if their gardens are designed to suit their personal needs and characteristics. All structures in this exhibit can easily be adapted for home use. Suggestions for tools, storage areas, and raised beds are presented along with notes on plants, wheelchair specifications, and suggested readings.

20. "Zoo Made Accessible." Paraplegia News 29:338: 11; November 1976.

Explains how Dr. William Campbell, Professor of Biomedical Engineering at the University of Tennessee, was instrumental in making the Knoxville Zoological Park accessible. Armed with gate counts showing that at least twenty-eight percent of the zoo's visitors had handicapping conditions, Campbell persuaded officials to commit one percent of the $3.5 million zoo expansion budget to eliminating or removing architectural barriers. Grassroots support was obtained from civic and fraternal groups and Knoxville based state highway patrolmen.

21. Zucker, Ken. "Accessibility: How One Department is Making it Possible." Parks and Recreation 11:6: 25; June 1976.

Los Angeles County Department of Parks and Recreation will be one of the first public recreation agencies in the country with facilities that are completely accessible to persons with various physical impairments and disabilities.

SWIMMING POOLS

Adapting Existing Swimming Pool Facilities*

Lack of a specially designed swimming pool area should not keep a group or agency from providing a swimming program for individuals with various handicapping conditions. When existing facilities are used, instructional and recreational swimming programs and aquatic activities must be adapted to the facility. Some problems most often mentioned when existing pools and aquatic facilities are used include:

- Difficulties in adequately increasing water temperature.
- Difficulties in gaining access to pools at reasonable times on a continuous basis due to already crowded schedules.
- Insufficient shallow water areas for small group and one-to-one instruction.
- Inability to use outdoor swimming pools because of extremely cold water and atmosphere.
- Difficulty in getting individuals in and out of the water.
- Architectural barriers that prevent use of locker room, showers, and rest rooms as well as getting in and out of the building itself.

Generally, existing facilities can be made more usable and functional for special populations by adding or altering equipment and reorienting pool operation to provide the best possible teaching and swimming environments for individuals with different handicapping conditions. Good public relations make it possible to obtain use of pools and to make necessary environmental changes--elevating water temperature and satisfying maintenance requirements--which are important to the success of any swimming programs.

The basic difficulty lies in making it possible for individuals with different types and severities of handicapping conditions to get in and out of pools. Preconceived ideas of what individuals with certain handicapping conditions can and cannot do often impose limitations on persons with these conditions whether or not they are justified. When individuals have to deal with barriers of all types on a daily basis over extended periods of time, they develop innovative and unconventional approaches to combating such obstacles. Unfortunately, the obvious solution of asking these individuals for their suggestions and preferences has too often been overlooked. Individuals have come up with many of their own solutions to pool entrance and exit problems. For example:

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*Material for this section was adapted from Julian U. Stein, "Pool Facilities for Impaired and Disabled Persons," *Swimming Pools: A Guide to Their Planning, Design and Operation*, third edition, edited by M. Alexander Gabrielsen (Fort Lauderdale, Florida: Hoffman Publications, 1975), pp. 173-182.

- Bring an individual into the pool on a litter and let him/her float off to greater independence; give only the amount of assistance necessary regardless of the type or severity of a condition.
- Use a wide board individuals can slide or gradually make their way down forward or backward into the pool where they are on their own to the degree each one can handle.
- Take full advantage of wide steps; an individual can scoot his/her way into the pool.
- Use a conventional plastic tumbling mat as a slide for entering a pool as well as for support once an individual is already in a pool.
- Take a wheelchair directly down a ramp or wide steps into the pool; the individual moves or is helped out of the chair and into the water.
- Carry a small child piggy-back into the pool.
- Adapt various one, two, three and four person first aid carries so an individual can be physically lifted and carried in and out of the pool.
- Let an individual roll from the top of the ledge into the water and use as much control as necessary according to capabilities of the individual.
- Build a temporary or portable ramp according to types and severities of conditions of individuals using a specific swimming pool or aquatic facility.
- Build a platform near a side or wall of the pool so an individual can bring a wheelchair to it in such a way that he/she can move from the chair to the platform and then into the water.
- Adapt starting blocks so they can be used to assist individuals with entry into and exit from pools.
- Use gym scooters or similar devices which an individual can move on from the deck into the pool.
- Dig a ramp on one side of a pool; by going down to the end of the ramp the seat of a wheelchair is even with pool side which makes for easier transfer.
- Improvise sling seats with towels, canvas, and other materials to use in getting an individual in and out of a pool.

- Install a commercial lift or hoist when absolutely necessary.

- Use combinations of suggested ways and improvise specific procedures and techniques according to need of individuals taking part in the program.

Additional considerations for adapting and/or using existing swimming pools or aquatic facilities for special populations include:

- Special chairs should be light weight and corrosion resistant. A chair, particularly a folding type with tubular aluminum or magnesium tubing framework, with rope or fabric back and seat is satisfactory.

- Power associated with devices to aid entry into and exit from pools should be *mechanical* rather than electrical because of simplicity of operation and hazards associated with operating electrical equipment in water or highly humid air.

- When a pool is used for programs including both able-bodied and disabled populations, it is imperative that all aids to pool entry be capable of being dismantled and stored when not being used by impaired, disabled, or handicapped persons to reduce the attractive nuisance features of apparatus for all youngsters.

- Exercise bars and extra handrails are simple but effective additions to a pool to add to its accessibility and functional use by individuals having various degress of ambulation.

Considerations for Construction of New Aquatic Facilities

Often common-sense, easily implemented, and inexpensive approaches can be used in building a swimming pool or aquatic facility that is accessible to individuals with various handicapping conditions. Important to the health and safety of these participants and to the success of their programs is warm water and correspondingly warm air. Ideally water should be 80-90 degrees with air temperature five degrees above water temperature. Often when pools are used for therapeutic purposes or with individuals having severe physical limitations or multiple conditions, water temperature may be several degrees higher than the generally recommended range. Water must be clean, chlorinated, filtered, and have an adequate turnover for the bather-load; periodic checks must be made to insure proper water chemistry at all times.

Pools should have non-skid floors and decks and accesses to both shallow and deep water by ladders or built in steps; pool bottoms should have very gradual slopes. Ramps of various kinds have been incorporated in many different ways and for a variety of uses in many pools. Pool depths need to be clearly marked; reach-poles, crooks, buoy lines separating shallow and deep water areas, and similar safety features should be readily available and installed. A large deck area or substitute dry land space is desirable for instructional drills and other selected teaching approaches.

Adequate shallow to very shallow water areas are important to the success of instructional swimming programs for handicapped individuals, especially the young, timid, and fearful. Some instructors have advocated lowering water levels for some programs to facilitate beginning instruction. However, in most pools lowering water levels incapacitates the filtering system. The system can be shut down for short periods of time but it is not considered a wise practice. Lowering the water level one foot in a large pool represents many thousands of gallons of water and usually requires a shutdown of several hours to remove the water; refilling usually takes longer. Health authorities usually frown on lowering water levels in a pool. A wading pool or some device to raise the level of the bottom is considered a more satisfactory and effective practice for those purposes. Stadiums Unlimited (P. O. Box 374, Grinnell, Iowa, 50112) has developed an aluminum platform that can be easily and quickly assembled and disassembled as a means of raising the bottom of a pool for students who need shallow water. Portable, mobile, and plastic backyard pools of various sizes should not be overlooked for these purposes. Motel, hotel, apartment, and private pools should not be overlooked either.

Recently a pool with a movable bottom was introduced and made available in this country. With a false or second pool bottom operated hydraulically, water depths are controlled by the push of a button so that they range from a few inches to several feet. One of the first installations of this type in the United States was at the YMCA in Olean, New York.

Still, another unique approach has been installed at the University of New Mexico in Albuquerque. Hydraulically controlled walls make it possible to section off a portion of the regular pool for special uses. Temperature of water in this section can be raised independently of water in the rest of the pool. In this way individuals needing special water conditions can receive this attention without affecting the rest of the pool. Walls retract through switch control so the entire pool can be used for instructional, recreational, or competitive swimming.

Groups planning multipurpose community swimming or aquatic facilities should spend considerable time on pool design to insure a usable and functional facility. Factors and considerations to be a part of comprehensive planning include:

- Local need and demand.
- General accessibility of entrance into the building including ramps and their use.
- Accessibility of accommodations--parking, first aid room, entrance halls and corridors, rest rooms, offices, meeting rooms, telephones, drinking fountains, door widths, directional signs, building furnishings.

- General traffic movement and patterns into and within the building.

- Pool construction including access, water temperature control, rest facilities, provisions for spectators, equipment and aids in the pool area.

- Changing/locker and shower room including design and layout, clothes storage, quick drying rooms.

- Sauna and other special provisions.

Guidelines and standards for making pool facilities accessible to and usable by individuals with handicapping conditions are basically no different than those to make other facilities accessible. (A listing of good resource materials may be found on pp.11-25.) The pool and pool structure should be easily accessible from parking areas. Walkways, approaches, and halls should be constructed of non-skid materials and ramped for changes of elevation. Doors and hallways should be wide enough to accommodate wheelchairs and passing of heavy equipment. Water fountains, telephones, lockers, and toilet facilities should be accessible from wheelchairs. Locker and shower rooms should be on the same level and immediately adjacent to the pool whenever possible; acoustical tile helps to control noise in indoor facilities. Adequate locker space for all types of conditions is needed and consideration should be given to providing one or two horizontal locker spaces in addition to conventional vertical lockers. If possible, large padlocks with large keyholes and keys should be obtained for students having visual, neuromuscular, or similar problems. Several shower heads and/or controls should be placed so they can be reached from a wheelchair, with handrails for support installed in both shower and toilet areas. Extension of toilet-flushing arms permits use by students with various physical conditions. Shockproof hair-dryers and electrical fixtures are a necessity.

Many multi-purpose pools have been designed to provide water areas of various depths so that instructional programs, recreational swimming, competitive activities, synchronized swimming, diving, and special programs may all be accommodated. Great freedom can be utilized in planning an outdoor facility and odd shapes--even free-of-form--can be set apart in special areas. Indoor pools, however, do not have this degree of freedom in design; cross dimension is related to the span of the building. Rectangular swimming areas are most efficient if one is required to relate total water space available to span structure.

Some popular shapes providing multi-purpose areas are L-shaped, T-shaped, H-shaped, and Z-shaped pools. The multi-purpose pool should be designed so areas can be roped off for special programs. Some pools have been designed so that a movable bulkhead allows water temperature in the bulkhead area to be raised independently of the rest of the pool; specially designed units of this type are quite expensive. Often the same purpose can be realized by a separate pool or spa unit with return lines from the heater. This arrangement can give better, more rapid control of water temperature at a lower cost.

There should be adequate deck space all around a pool--deck space should be related to program and to those for whom the pool is designed and used. For example, pools which are used extensively by students in wheelchairs should have a deck space at least the equivalent width of two and one-half wheelchairs. If clear program and participant considerations are lacking, a standard formula of deck/water ratio could be used to determine minimum deck area around a pool. One large deck area should be available, preferably near shallow water.

Areas to be used for these programs should have depths running from twelve to eighteen inches to four or five feet. Some pool personnel have developed a shallow water area by building a six by eight foot shelf in twenty-four to thirty inch water to provide the desired twelve to eighteen inch depth.

A variety of design treatments of deck level pools is available; likewise, there are a number of innovations in recessed gutter type pools. In both of these types, the size, shape, and location of the overflow is of great importance to the operation of the complete recirculating system. Architects designing these pools are urged to consult with competent hydraulic engineers or swimming pool consultants in the choice of recirculating system. Other modifications which have been used for easy entry and exit are ramps going down into the water or underwater steps with a handrail for support also going into the water.

The pool should have a good filter-purification system and a heating system capable of raising water temperature quickly. In a multi-purpose pool, some method of bulkheading should be considered in order that pool temperature in the instructional or therapeutic area can be raised to 80 or 90 degrees to provide pool warmth. Ideally, air temperature and air flow should also be controlled to prevent evaporation chilling when a student is out of the water. An air conditioning and heating specialist should be consulted on this matter since there is a four to six degree comfort zone--water and air temperature within four to six degrees of each other--which also reduces condensation. A place for hanging towels and robes should be provided in the pool area so students may be dry and warm when out of the pool. An emergency first aid room with a telephone should open onto the pool deck. This can often be combined with a pool office area.

A storage room opening on the pool deck should be a part of the pool design. This provides a place to store pool equipment and instructional materials which leaves the pool area uncluttered so as to provide a better teaching environment while insuring that teaching aids and equipment are readily available.

Other features that have been found to be valuable include: water inlets opening on the bottom of the pool to provide more uniform temperature throughout the pool; sleeves set in the bottom of the pool for removable rails or parallel bars to be used for support and handholds; color, braille, and sound coding to indicate depths, exits, and other special features of the pool; a music or sound system to provide quieting or stimulating music throughout the pool area; colored lines and shapes--circles, squares, triangles--of different sizes as part of the pool floor for introducing and/or performing laterality and directionality movements and patterns as well as perceptual-motor and other spacial awareness activities.

A widespread misconception exists concerning water depth for impaired swimmers whose needs can supposedly be met in a learning pool where depth may range from two-and-a-half to three-and-a-half feet. Without assistance of normal lower limbs an impaired swimmer relies on the body's center of gravity being below pool water level to maintain buoyancy. To achieve this, an adult of average height requires a water depth of about three and three quarters to four feet. Usually only water depths in general pools meet these needs. Certainly a small impaired child and those who are especially timid or fearful of the water can find satisfactory conditions in learning pools.

Accessible Swimming Pools: Examples

A post-polio quadriplegic who can stand for only a few minutes has his pool built six feet deep--two feet above and four feet below ground. The pool bottom gradually slopes up to two feet at the center so that when he wants to exit, he simply gets to the shallowest part and sits on the edge of the pool; someone turns his legs around and he transfers back to his wheelchair.

A unique set-up is used by the *Veterans Administration Hospital in Miami, Florida*. The twenty-five by forty foot pool has a ramp four feet wide and twenty-one feet long sloping down at the shallow end. Handrails flank both sides of the ramp; a winch is mounted on a wall opposite the ramp and can be hooked to a wheelchair permitting another person to lower or pull out someone who is unable to walk.

The *Longview, Washington, YMCA* program makes use of a monorail system in conjunction with a truck hoist and special chair. This is used because pool decks are too narrow to permit passage of a wheelchair along the edge of the pool from dressing rooms to the desired point of entry into the water. The participant is placed in the special chair at the dressing room door, secured with a safety belt, lifted approximately two inches above the floor by means of the hoist, and pushed horizontally along the pool edge. At the desired point, an attendant in the pool manipulates the ropes or chains on the hoist and lowers the participant until the chair rests on the bottom of the pool. The safety belt is then unfastened and the occupant assisted from the chair. When leaving the pool, the sequence is reversed.

Another outstanding swimming/aquatic facility is the *CAR (Community Association for the Retarded) Swim Center in Palo Alto, California*. This indoor H-shaped pool is seventy-five feet long, forty feet wide at each end, and twenty feet in the center. Depth of the pool is three to nine feet with a wide back of shallow steps providing even greater variations of depth. A wheelchair ramp, set of steps in the shallow end, and ladders in the deep end are provided. Water temperature is kept a constant eighty-six degrees. The recently completed pool at the Recreation Center for the Handicapped (San Francisco, California) has been adapted from the CAR pool.

The indoor swimming pool at the *Human Resources Center in Albertson, New York*, uses standard heating, filtering, and recirculating systems equipment, but includes a number of features which make it accessible to physically impaired persons:

- Sides of the pool are the height of a standard wheelchair, nineteen inches above floor level. By wheeling to the ledge, a mobile individual can transfer directly from his/her chair into the pool. By bringing a chair or litter to the ledge, an individual can be easily assisted or transferred into the pool. Processes are reversed for leaving the pool. The ledge extends far enough over the outer edge of the pool for wheelchair pedals to fit underneath. Coping around the pool is made of a natural finish marble with smooth, sanded edges.

- Water level is kept higher than usual to assure easy access into and out of the pool. Water is kept about six inches below the edge instead of the usual 12 inches for this purpose. Water temperature is kept between eighty and eighty-two degrees to facilitate motion; air temperature is kept within five degrees of figure.

- Floor surface is composed of non-skid, heated tiles. Aisles around the pool are about six feet wide so that two wheelchairs can pass with no difficulty. Benches and lounge chairs around the pool are wheelchair height.

Several different methods are used by individuals to get into the water at the Human Resources Center. A nineteen foot ramp into the shallow end of the pool has a fifteen percent grade and ends in three and one-half feet of water. There are also five sets of parallel assist bars set around the coping to help people who can use their arms, as well as one of the two conventional ladders with non-skid pads set into the coping for ambulatory individuals. A series of graduated steps with double handrails continue into the water for a distance of eight feet. For quadriplegics and severely involved persons who require such assistance, a Hoyer hoist, which is controlled by an aide or lifeguard, is available. This hoist consists of a canvas stretcher suspended on a track and is used to lower individuals directly into the pool.

The swimming pool at the *Joseph H. Cole Recreation Center in Washington, D. C.*, has a ramp from the deck into the pool for direct access by wheelchairs. So that wheelchair users with additional muscular disabilities in their hands and arms will not roll into water over their heads, the floor of the pool was designed with a minimum slope from two feet six inches to three feet. A deep water alcove, protected from shallow areas by underwater railings, is included for special training purposes. Stumblers on the deck are protected by a continuous bench which also serves as a wheelchair transfer point into deeper water. Removable guide rails at one end of the pool can be useful in therapy and swimming instruction. Contrary to usual practices, the pool deck was sloped back toward the pool to reduce water collection and slipping on the deck.

Swimming Pools: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137-140.

1. Carnochan, Jock. "New Swimming Pool." St. Dunstans Review 664: 5-6; June 1975.

   Gives technical details, safety considerations, and adaptations for a new swimming pool at St. Dunstan's (England). All measurements are in non-metric terms.

2. "How to Make a Swimming Pool Accessible." Accent on Living 18:4: 58-61; Spring 1974.

   Several approaches to problems disabled swimmers face in getting in and out of swimming pools are discussed. A lift or hoist is operated by another person and may be removed when not in use. Pool sides can be built wheelchair height so a person can transfer to the side and slide into the pool. Raised pools also provide greater safety as young children, pets, and others are less likely to fall accidentally into the water. Ramps with gradual slopes may also be used.

3. Kaiser, Dave. "City Equips Swim Center for Handicapped Persons." Data and Reference Annual, 38th Edition. Fort Lauderdale, Florida: Hoffman Publications, Inc. (3000 N. E. 30th Place, P. O. Box 11299, 33306), 1971. pp. 90, 92.

   A swimming program for individuals with handicapping conditions, sponsored by the Recreation Department of Long Beach, California, is described. For a total cost of less than $1000, the pool and locker rooms were modified slightly for use by persons with various impairments, disabilities and handicaps. A socket sleeve was installed flush with the deck near the shallow water area so a portable hydraulic lift could be used to assist persons getting into and out of the water. Certain partitions in rest rooms were removed to allow space for maneuvering wheelchairs. Wall handles were installed and two standard toilet seats were replaced with ones having winged handles on each side. A shower head was installed to allow access by shower chair, and clothing tables or platforms were added for changing. Two portable hydraulic lifts on wheels were used in the locker rooms to transfer swimmers from personal wheelchairs to the four shower chairs and dressing tables. Although complaints from the general public over the warmer water temperature (eighty-five to ninety degrees during all winter) were anticipated, most people liked both warmer water and air.

4. Lyttle, Robert M. "Integrating Families of Handicapped Individuals into the Public Swimming Facility." Therapeutic Recreation Journal 10:2: 55-60; Second Quarter 1976.

   The history of swimming programs in the United States for persons with handicapping conditions is outlined. A family swim program designed to help develop social integration of these individuals with their families as a means of getting them into the aquatic mainstream is described. Sponsored by Temple University College of Health, Physical Education, Recreation and Dance (Philadelphia), the program is staffed by student volunteers. Each able-bodied participant must be accompanied by an individual with a handicapping condition. The pool is housed in a barrier-free building and has the same equipment that might be found in a community pool--kickboards, plastic rings, hoops, and beach balls. A three feet by five feet piece of commercial wrestling mat type material is used as a floating raft for teaching swimming and to assist participants who have seizures in the water.

5. McKee, James I. "Wheelchair Transfer to Swimming Pool." Physical Therapy 54:12: 1308; December 1974.

   A Florida wheelchair user with his own swimming pool bought a premolded mobile home step unit and covered it with an inexpensive rug so that he could enter his pool easily. By positioning his wheelchair so that he could transfer from it to the step, he gets in and out of the pool independently. Removable arm rests might have been helpful; a transfer board might also have been used.

6. O'Connor, Christine. "Water Treatment." Building Design, October 3, 1975.

   A swimming pool that was designed to be enjoyed by both disabled and able-bodied persons and can also be used for therapy is described. The complex consists of a main area for everyone's use and an area with facilities for those with mobility problems or who are being introduced to water therapy. A hydraulic hoist, used to help persons into the water, and other design features to make the pool accessible to all persons are discussed.

7. Podoll, Patricia A. "Swimming for Rehabilitation of the Physically Handicapped." Aquatics Guide 1967-69. Washington, D. C.: Division of Girl's and Women's Sports, American Alliance for Health, Physical Education and Recreation (1201 Sixteenth Street, N. W., Washington, D. C., 20036), 1967-1969.

Although most pools have been built for able-bodied persons, they can easily be adapted for persons with various handicapping conditions.

8. "Pool Enclosure Boosts Program for Handicapped Swimmers." Data and Reference Annual, 39th Edition. Fort Lauderdale, Florida: Hoffman Publications (3000 N. E. 30th Place, P. O. Box 11299, 33306), 1972. pp. 150, 152.

Use of a heated pool with a pool enclosure provides for a year-round swimming program at the East San Diego County Training Center for mentally retarded children. A pre-fabricated semi-transparent building with a push-button roof system which opens to let in fresh air and sunshine, and closes to seal out cool, damp, or windy weather was chosen. Funds for the enclosure were donated from local individuals, clubs, organizations, and businesses.

9. "Pool for the Blind." Swimming Pool Review (United Kingdom) 16:3: 102; September 1975. Available from the National Documentation Centre for Sport, Physical Education and Recreation, The University of Birmingham, Birmingham, B15 2TT, England.

10. A Practical Guide for Teaching the Mentally Retarded to Swim. Washington, D. C.: American Alliance for Health, Physical Education, and Recreation, and Council for National Cooperation in Aquatics (1201 Sixteenth Street, N. W., 20036), 1969.

This composite of ideas and experience of many individuals who have taught mentally retarded persons to swim is designed for professionals, volunteers, and individuals with little or no experience with mentally retarded persons or who have minimal swimming experience. Section on pool facilities covers factors to be considered in planning swimming pools for use by handicapped swimmers, modifications of general design, and innovations for adapting existing facilities.

11. Read, Alf. "Swimming for the Disabled: Building Adaptations." Baths Service 34:5: 120; 1975. Available from National Documentation Centre for Sport, Physical Education, and Recreation, The University of Birmingham, Birmingham, B15 2TT, England.

Getting persons with physical impairments into a pool may be accomplished with both reasonable comfort and dignity through use of shallow steps, ramps, or hoists. Accessible pool which forms part of the Morden Park Swimming Pool Complex in Morden, Surrey (England) is described.

12. ______. "Swimming Pool Facilities for the Disabled." Baths Service 35:3: 56-57; March-April 1976. Available from National Documentation Centre for Sport, Physical Education and Recreation, The University of Birmingham, Birmingham, B15 2TT, England.

13. Sport for All: Low Cost Swimming Pools. Strasbourg, France: Council for Cultural Cooperation, Council of Europe, 1970. Available from United States Sales Office: Manhattan Publishing Company, 225 Lafayette Street, New York, New York, 10012.

Any sound measure of cost reduction for swimming pools should be decided on during preliminary planning stages. A section on general planning principles includes basic swimming pool options and minimum health and safety requirements. Another section deals with accessibility requirements for sports centres including details about the main entrance foyer, vertical circulation, changing rooms, and the sports hall itself. The major portion of this publication is devoted to swimming pools including sections on saunas and equipment.

14. Stein, Julian. "Pool Facilities for Impaired and Disabled Persons." Swimming Pools: A Guide to Their Planning, Design and Operation, third edition, M. Alexander Gabrielsen, editor. Fort Lauderdale, Florida: Hoffman Publications, Inc. (3000 N. E. 30th Place, P. O. Box 11299, 33306), 1975. pp. 173-182.

This chapter begins with a brief discussion of classifying exceptional persons according to ways individuals with various conditions look upon themselves. Programs for special populations, including swimming and aquatics, consist of *regular, intermediate* or *halfway-house* type, and *special segregated* patterns. Specific examples of practical and innovative solutions to problems encountered in adapting existing swimming/aquatic facilities to accommodate impaired and disabled persons are discussed. A list of sources that provide detailed information about guidelines and standards for accessibility in shower and locker rooms and toilets is provided. Two totally accessible indoor swimming pools are described in detail. Criteria for planning community aquatic facilities designed to meet needs of special populations are included. Shallow learner pools are described as confidence builders for young and impaired, disabled, and handicapped children who may be afraid of water. In planning swimming pools, needs of special populations must not be overlooked.

15. Walter, Felix. Sports Centres and Swimming Pools: A Study of Their Design with Particular Reference to the Needs of the Physically Disabled. London, England: Disabled Living Foundation (346 Kensington High Street, W.14), 1971.

Recommendations to make each specific detail of swimming pools and their surrounding facilities accessible are presented. Importance of integrating special populations with able-bodied participants to attain full enjoyment of the environment by preventing impairments and disabilities from embarrassments to both groups is emphasized. Easy access to food areas and lounges is necessary if integration is to develop naturally and effectively.

OUTDOOR RECREATION FACILITIES

General Suggestions for Planning Outdoor Recreation Facilities

In designing outdoor recreation facilities that are accessible to and usable by all individuals, certain important considerations should not be overlooked. Most modifications in design and construction of outdoor recreation facilities for persons with handicapping conditions are relatively minor and are also beneficial to all users. Many of these changes are practical in administration of high-use recreation areas as well; for example, use of hard surface pathways and campsites helps to protect the site itself. However, not all persons with handicapping conditions, or even all persons with the same handicapping condition, desire the same kind of outdoor recreational experience. Just as some able-bodied persons prefer more challenging primitive wilderness areas while others want campgrounds with all the comforts of home, some individuals with handicapping conditions may want longer and more difficult trails than other persons with handicapping conditions. Large numbers of impaired, disabled, and handicapped persons are able to and want to enjoy a wider range of experiences than many planners of programs and facilities think they are capable of handling. Low expectations of and paternalistic attitudes toward such individuals are often as great or greater a barrier to accessibility than a flight of steps.

A basic principle in all areas of recreation planning involves consideration of the needs of persons who will use facilities and participate in programs. What better way to plan for user needs than to involve potential users in the planning process? Individuals who have input into facility design are much more likely to use such facilities than those who do not. Earlier involvement of individuals with handicapping conditions might have alerted planners sooner to the fact that, in general, such individuals do not need or want segregated outdoor recreation facilities.

Since only about ten percent of blind people read Braille and Braille lettering is neither weather- nor vandal-resistant, information, instructions, and other material about outdoor recreation programs, activities and exhibits can best be presented to visually impaired persons with audiocassettes; this is also more effective for sighted users of the facility. Blind people get around the rest of the world without guide ropes or kickrails, so the natural setting needs to be no different. No special guiding apparatus is needed, as long as paths and areas are clearly identified and safe for everyone.

Funding for segregated facilities to accommodate impaired, disabled, and handicapped individuals is often difficult to obtain. Even when segregated facilities are labeled as *Braille Trails* and *special* areas *For the Handicapped*, they are used very little by such individuals. For these reasons it is important not to enforce social segregation on persons with handicapping conditions. So often special programs, activities, and facilities are designed *for* impaired, disabled, and handicapped persons *by* able-bodied providers of services. Unfortunately, a great schism still exists in many areas between what participants actually want and need and what is being advocated and provided by professionals in these different areas. Designing *all* facilities for *all* persons will be more satisfying to *all* visitors and will cost less per user in the long run. The Environmental Resource Center (see article on pages 129-132 of Appendix D) is an example of one outdoor facility designed for everyone to enjoy.

Outdoor Recreation Areas in National and State Forests and Parks

When the federal government first began to respond to mobility needs of persons with handicapping conditions and to problems of architectural barriers, many recreational facilities were designed and labeled as being *special Braille trails, trails for the blind,* or *areas for the handicapped.* Now, approximately ten years later, planners and park managers are slowly learning that the majority of persons with handicapping conditions neither want nor need segregated facilities.

Today 266 out of 286 areas in the National Park System are accessible to handicapped people. (42) The most recent philosophy of the National Forest Service on designing facilities for use by physically impaired and disabled persons is expressed in the following excerpt of Section 2331.11e of Title 2300, Recreation Management of the *Forest Service Manual.** Note that the Forest Service recommends using the American National Standards Institute's *Standards for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped.* For information on the document, see pages 7 and 12.

> 2331.11e - *Design for Use by the Physically Handicapped.* The physically handicapped wish to be included in the mainstream of life, without an inordinate amount of special (or segregated) facilities and programs. The Forest Service goal is to provide recreation sites and facilities which will make this possible. The primary need is to eliminate architectural barriers which prevent their use or enjoyment of the recreation attractions. Facilities designed for both the handicapped, and those who are not, entail little or no extra cost, provided that the requirements are included at the conceptual stages of the project.
>
> Recreation site and facility design and operation shall be guided by the "specifications for making buildings and facilities accessible to, and usable by, the physically handicapped," American National Standard, ANSI A117.1-1961 (R 1971), American National Standards Institute, Inc., 1430 Broadway, New York, New York, 10018.

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*United States Department of Agriculture - Forest Service, *Forest Service Manual* (Washington, D. C.: U. S. Department of Agriculture-Forest Service, 20250, August 1973).

Wherever standard facility and site plans contain architectural barriers to the physically handicapped, Regions shall provide supplements for the purpose of illustrating proper door widths, table heights, ramps, safety features, etc. These supplements shall be used for new and rehabilitated sites and facilities where those sites and facilities, or portions thereof, are expected to be used by the physically handicapped. The appropriate number of such changes, facilities or family units within a site, or such sites within an area, shall be "in proportion to the anticipated number of individuals with disabilities who would use a particular building or facility." See ANSI Standards, Section 2.13.

Among the recommendations of the American Society of Landscape Architects for park and camping facilities are:*

- Level ground around high use areas--shelters, lavatories, swimming areas, food preparation areas.
- Picnic tables resting on a hard surface at least three to four inches wider on each side than the table. So that a wheelchair can slide under the table, a minimum of twenty-nine inches of space should be allowed between the bottom edge of table and the ground.
- Fireplaces raised eighteen inches to twenty-four inches off the ground, which are easier to use from a seated position than are ground level fireplaces.
- Provision of some grills, because these are more convenient than fireplaces for cooking food over charcoal.

Outdoor Recreation Areas in National and State Forests and Parks: Examples

Broken Bowl Picnic Ground
Willamette National Forest
USDA-Forest Service
210 East 11th Avenue
P. O. Box 1272
Eugene, Oregon, 97401

Broken Bowl Picnic Ground is located beside Fall Creek, a major tributary of the Willamette River. It has access from a paved forest road, is 12.5 miles from the community of Lowell, and 32.5 miles from the Eugene-Springfield metropolitan area with an estimated population of 175,000 people. The site is relatively level but has banks into the stream from five to fifteen feet in height.

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*Material adapted from *Barrier Free Site Design*; see reference number 9 on page 12.

Broken Bowl's planners adopted the philosophy that recreation facilities can be designed to accommodate users with mobility impairments, once the needs of these users are known and appreciated. The goal is not to set aside an area exclusively for disabled users but to make it possible for them to enjoy forest recreation opportunities on an equal basis. Because they had this philosophy, planners included handicapped individuals in the planning process from the beginning.

User safety was a great factor in modifying existing picnic site specifications for use by the handicapped. Safety considerations necessitated handrails along trails built on banks and bumper curbs around the trail ramp near the stream. Maintaining less than five percent grade on trails proved very difficult but was considered essential for safety. Paving the picnic site was considered, since this would make it easier to move about in wheelchairs, but paving was determined to be too artificial and would reduce the outdoor experience.

Complete design specifications for Broken Bowl may be obtained from the above address. Some of these design adaptations include pedestal fireplaces and 32" high hydra-fountains with hard surface approach. In rest rooms, mirrors that tilt down were installed for wheelchair users.

Kings Mountain National Military Park
P. O. Box 31
Kings Mountain, North Carolina, 28086

Kings Mountain has recently made several design modifications to accommodate physically handicapped visitors. Part of the battlefield is now paved, and a handrail was installed on the steepest part of the trail. A 75-yard gradual ramp provides access to the lobby, auditorium, and program room. A staff members is available to interpret the historic 1780 battle to hearing impaired visitors in sign language. Other areas provide writing pads for questions and answers for deaf individuals who do not speak. The park and park facilities also include rest room, doorway, and parking space modifications.

Trout Pond Recreation Area
USDA-Forest Service
P. O. Box 68
Crawfordville, Florida, 32327

A most unusual National Forest recreation area, Trout Pond is located twelve miles southwest of Tallahassee on State Road 373. There is no charge at Trout Pond, and the area is open April 1 through October 31 from 9:00 a.m. until dark. Reservations are required for use during the remainder of the year.

An effort to help users more fully enjoy Trout Pond has been made by eliminating curbs, soft sand, steep trails, and modifying parking areas, toilet stalls, drinking fountains, and picnic tables. Numerous benches and grassy areas provide rest stops and observation points along the trails. For those who wish to swim, there is a pool accessible by a ramp or steps, and a fishing pier can also be used by all. Ample signs in braille and large routed letters are provided, as well as raised strips in the trail surface to help visually impaired persons locate signs and trail junctions.

Trails

Jacque Beechel conducted a national survey of interpretive facilities designed to accommodate persons with handicapping conditions and traveled 12,000 miles visiting a representative sample of these facilities. She found that almost all trails that attempted to meet needs of both blind persons and persons in wheelchairs reported complaints by blind persons that ...*the trail was too tame!* (5) A trail designed to meet wheelchair requirements for a smooth hard surface cannot provide the same experience available from a trail left in an almost natural state. Administrators of many trails also report complaints from persons with handicapping conditions who stated that they do not want separate facilities. Some special trails have actually been boycotted by these potential users because of ways they separate, segregate, and stigmatize so-called special populations.

Beechel pointed out that no one trail design can be suitable for all people; persons with handicapping conditions all have different abilities, individual desires, and unique needs. Although most want to be independent, some do not. She found that trails enjoyed most by blind persons were those that had been left in as natural a state as possible, as long as they were safe. On the other hand, trails popular with persons with impaired mobility were hard, smooth, at least four feet wide, had little or no crown, no steps, and a grade of less than five percent; lowered drinking fountains with levers rather than knobs, accessible rest rooms, and conveniently located parking areas were also important.

Beechel suggests that one approach to satisfying as many visitors as possible is to have two kinds of interpretive trails--one would accommodate people in wheelchairs and others with mobility limitations and have a smooth hard surface with as little relief as possible; the other type of trail would be geared to visitors who want more challenge than offered in the first type of trail. It would be unpaved, with as much relief as compatible with interpretation and left in as natural condition as possible while still being safe.

Suggestions for Trail Construction

The following suggestions have been gathered from a variety of sources. Importance of involving persons with handicapping conditions in the planning process should not be overlooked or neglected. Keep in mind that such individuals have differing needs, abilities, and preferences just as their able-bodied friends and peers.

- Make the trail surface firm; materials such as soil cement, compacted trap rock dust, or asphalt are suitable for light or moderate traffic.

- Keep trail well manicured from poison ivy, fallen trees, low branches and other potential obstacles. Maintain vertical clearance of eight feet six inches from pathway to tree canopy.

- Be sure rest areas are adjacent to walkways with enough space for at least one wheelchair and one bench.

- Do not make nature trails too long; one-half mile should be about maximum; but consider that some users will want a longer, more challenging trail for hiking.

- Make the width of a trail wide enough for two wheelchairs to pass--five feet six inches minimum; grades of less than five percent are most accessible.

- Make signs on the trail; for blind hikers, a photoplated upraised eighteen-point type print is preferable to Braille; tactile maps might also be used for helping to orient the blind better.

- Recorded messages at stations are excellent but expensive. Brochures should be available. An interpreter is the best source of information in both communicating and getting others involved in the outdoor setting. Translate interpretive walks for the deaf by use of sign language and fingerspelling.

- Include in a trail or program as much sensory involvement as possible--smell boxes, textures, shapes, sounds of running water, birds, opportunities to taste water from natural spring, sassafras tea.

- Incorporate innovative fun and learning ideas into stations or *fun areas* along a trail--motor and perceptual-motor development for slow-learners and mentally retarded groups can be a part of station activities; physical fitness stations can also be set up.

- Pay attention to fragility of the interpretive resource--replacement of plants and other items to be touched.

- Keep in mind nature's wear and tear and vandalism.

Trails: Examples

Elephant Rocks State Park Braille Trail
Elephant Rocks State Park
Ironton, Missouri, 63650

As originally constructed, the Braille Trail at Elephant Rocks State Park circled a giant granite outcropping and provided access to the top of this outcropping, Interpretive signs with Braille and English lettering were installed along the trail. It was not possible for wheelchair bound visitors to traverse the entire route of the trail because of such physical obstructions as narrow passages through rock formations, steep gradients and steps built into the trail. A few years ago it was determined that the trail could be adapted for use by all visitors at minimal cost. Three or four short trail loops were laid out around the physical barriers. All that was needed was a small amount of grading and asphalting.

Harriet L. Keller Woodland Trail
Cleveland Metropolitan Park District
Cleveland, Ohio, 44114

This 1,300 foot trail was designed to accommodate both individuals with handicapping conditions and able-bodied persons. It is one of three such trails for all people which serve visitors to the Cleveland Park System. The flat asphalt-paved surface measures six feet in width and is suitable for persons in wheelchairs or on crutches as well as for babies in strollers or elderly persons with impaired mobility. Plastic-coated guide wire stretched alongside the paved surface enables blind persons to follow the trail without difficulty. Weather-treated Braille markers posted at various spots along the trail highlight points of interest, but only those signs necessary to identify the trail location and warn bicyclists to stay out of the area are provided. The American Red Cross and the Society for the Blind have provided Braille trail guides for the blind as well as large-type texts for those with limited vision.

The Widener Trail
Schuylkill Valley Nature Center
Hagy's Mill Road
Philadelphia, Pennsylvania, 19128

This nature trail, built through a grant from a private foundation, is a hard-surface low-grade trail extending from the Nature Center Education building for a quarter-of-a-mile. It passes over a man-made pond through thickets and fields to a bird blind with wheelchair-height windows for viewing wildlife. Plantings of evergreen trees and grasses native to the area add texture to the trail; it is further enhanced by availability of aquatic study equipment for use at the pond. A built-in radio broadcast system enables visitors to hear taped messages interpreting natural and social history of the area through receivers carried either by hand or on a neckcord. Earplugs are also available. A Telesonic Unit with a two-frequency broadcast potential makes it possible to simultaneously broadcast two different sets of messages; thus a parent and child can walk the trail together and each hear an interpretive talk addressed to his/her own level of understanding. The system works by broadcasting from a continuous loop tape machine in the building into antenna wires buried under the trail. Messages, once taped, can be broadcast into any of the sixty-four trail zones created by the buried wires. Staff are working to develop a library of tapes containing messages on different themes, topics, or academic levels.

Camps

Participation of impaired, disabled, and handicapped campers in regular camp programs with able-bodied campers should be encouraged and practiced as much as possible. However, sometimes camp directors may be reluctant to accept campers with impaired mobility because their facilities are inaccessible. Other sections of this publication have information on making facilities accessible. In addition, the American Camping Association and National Easter Seal Society for Crippled Children and Adults have developed standards and modifications for camps serving individuals with orthopedic impairments. For details on these standards, contact:

American Camping Association
Bradford Woods
Martinsville, Indiana 46151

or

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

Outdoor Recreation Facilities: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137 to 140.

1. American Camping Association. Camp Standards with Interpretations for the Accreditation of Organized Camps. Martinsville, Indiana: the Association (Bradford Woods, 46151), n.d.

   Part II-C, added in April 1974, contains standards for camps serving physically disabled persons.

2. American Foundation for the Blind. Policy Statement on Nature Trails, Braille Trails, Footpaths, Fragrance Gardens, Touch Museums for the Blind. New York, New York: the Foundation (15 West Sixteenth Street, 10011), 1972.

3. Bartholomew, Robert. Indoor and Outdoor Space for Mentally and Physically Handicapped Children. Exchange Bibliography No. 503. Monticello, Illinois: Council of Planning Librarians (P. O. Box 229, 61856), December 1973. 9 pp.

   Author notes in his introduction to this bibliography that there are a substantial number of mentally and physically handicapped children in the United States, and the current trend is toward community care of these individuals. Properly planned outdoor play areas can be an important aid in the rehabilitation and learning experiences of handicapped children. This bibliography is intended to help playground designers collect necessary information about users' requirements to design successful indoor and outdoor facilities for handicapped children. The bibliography contains approximately eighty citations from books, professional journals, reports, and papers.

4. Barton, Barbara. Lake Confidence Trail. Brainerd, Minnesota: Camp Confidence (Box 349, 56401), n.d. 15 pp.

   Provides a collection of possible activities and interpretations for use along the one quarter mile long Lake Confidence Trail.

5. Beechel, Jacque. Interpretation for Handicapped Persons: A Handbook for Outdoor Recreation Personnel. Seattle, Washington: National Park Service, Pacific Northwest Region Cooperative Studies Unit, College of Forest Resources, AR-10, University of Washington (98195), July 1975.

   This publication is divided into three major sections: Interpretation, Handicapped Persons, and Interpretation for Handicapped Persons With a Special Consideration of Trails. The section on trails begins with an overview of both successful and unsuccessful features of trails which have been provided to meet needs of individuals with handicapping conditions. Suggestions by persons with handicapping conditions are presented, along with a collection of miscellaneous facts and ideas gathered during the author's travels, interviews, and readings. Appendices include physical design specifications for accommodating ambulatorily limited visitors at interpretive facilities and a directory of trails for persons with handicapping conditions.

6. Brett, James J. "Pathways for the Blind." The Conservationist 25:6: 13-16; June-July 1971.

7. Bureau of Outdoor Recreation and National Recreation and Park Association. Outdoor Recreation Planning for the Handicapped. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), 1967. 43 pp.

   Needs of persons with handicapping conditions and ways of adapting outdoor recreation activities to meet these needs are discussed. Modifications of playgrounds and facilities, and equipment for swimming, camping, fishing and boating are described. Case histories of a self-guiding nature trail in Aspen, Colorado, camping in San Francisco, California, and adaptation of recreational facilities in New York State are provided.

8. Cable, Louis A. "The Blind 'See' the World of Nature on the Braille Trail." Journal of Health, Physical Education, and Recreation 43:1: 85; January 1972.

   Braille Trail in Bucks County, Pennsylvania, at the Churchville Outdoor Education Center consists of a 1000 foot route through wooded open areas which is followed by means of a nylon rope. Hikers are given Braille books which describe eleven points of interest along the way. These are marked by posts.

9. Camp Confidence. Sylvan Trail - Camp Confidence. Brainerd, Minnesota: the Camp (Box 349, 56401), n.d. 5 pp.

   Descriptive notes for further appreciation of the one-third mile nature trail at Camp Confidence are provided.

10. Camp Facilities for the Physically Handicapped. North Brunswick, New Jersey: Camping and Engineering Service, Program Services Division, Boy Scouts of America (08902), 1976. 4 pp.

    This checklist outlines some typical adaptations which can be made in local council Scout camps to assist members who are either blind, poorly coordinated or in wheelchairs. Suggested measurements or adaptations for doors, steps, ramps, walkways, trails, swimming pools, informational and directional signs, activity areas and troop sites are presented.

11. Carroll, Arthur J. "Efforts to Adapt National Forest Recreation Areas for Use by the Handicapped." Therapeutic Recreation Journal 7:1: 41-44; First Quarter 1973.

    Describes improving opportunities of outdoor recreation for disabled individuals on national forest lands. Focuses on the search for design criteria to determine what is to be constructed, why facilities are constructed, and how facilities are constructed for handicapped persons. Also lists National Forests and recreation sites accommodating impaired, disabled, and handicapped individuals. Mr. Carroll is District Ranger, Otai Ranger District, Los Padre National Forest, Otai, California.

12. "Cliffview." Best of Challenge, Volume One. Washington, D. C.: American Alliance for Health, Physical Education, and Recreation (1201 Sixteenth Street, N. W., 20036), 1971. p. 119.

    Describes outdoor education/recreation area in Hamilton, Ohio, which provides a bicycle trail, riflery, and a hiking trail built by mentally retarded students.

13. Collins, Janice. "The Braille Trail." Trends in Parks and Recreation 5:2: 1-3; April 1968.

14. Dethlefs, Ted. "Modifications for Handicapped Persons in Outdoor Recreation." Therapeutic Recreation Journal 5:2: 72-74, 94; Second Quarter, 1971.

    Three categories of construction modifications for general outdoor recreation are described: the approach route, the building itself, and trails and surrounding grounds. Examples of facilities made available to persons with handicapping conditions are also included.

15. Droege, Richard F. "Giving Handicaps the Heave-Ho: Braille Trails and Lion Tales." 1972 Yearbook of Agriculture. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), 1972.

16. The Easter Seal Directory of Resident Camps for Persons with Special Health Needs. Chicago, Illinois: National Easter Seal Society for Crippled Children and Adults (2023 West Ogden Avenue, 60612), 1973.

This directory provides information about residential camps which identify themselves as serving children and adults with physical, mental, social, and/or emotional conditions or which report that they have specifically adapted their programs to accommodate persons with impairments and disabilities. Each camp description includes specific conditions accepted, along with location, age range, sessions, capacity, fees, and sponsors. Director is revised biannually.

17. Easter Seal Guide to Special Camping Programs. Chicago, Illinois: National Easter Seal Society for Crippled Children and Adults (2023 West Ogden Avenue, 60612), 1968.

Considerations in selection of campsite are provided. The specific type and degree of disability in the population to be served is an important consideration in choosing a site.

18. Easter Seal Residential Camp Standards Task Force. Easter Seal Residential Camp Standards and Interpretations. Chicago, Illinois: National Easter Seal Society for Cripplied Children and Adults (2023 West Ogden Avenue, 60612), revised May 1972.

19. Ellis, Mary. Camping Needs of Handicapped Children in Camps for the Non-Handicapped. Master's thesis. Columbua, Ohio: Ohio State University (43210), 1957.

20. An Environmental Resource Center for the Handicapped. Hempstead, New York: Office of the Presiding Supervisor (Town Hall Plaza, 11550), 1971. 15 pp. Available from IRUC in xerox form, $1.70. Item number 154.

The ANCHOR Program (Answering the Needs of Children with Handicaps Through Organized Recreation) was initiated in Hempstead, New York, in 1968. The success of the program required that recreation facilities be expanded and this publication describes a planned Environmental Resource Center. Objectives of the Center and activities to enhance motor, sensory, social, and personality development are described. The Center's master plan and management practices are discussed and illustrated.

21. Farmer, Charlene (Drosselmeyer). "A Study of Five Land and Water Conservation Fund Projects in Regard to Accessibility and Usability for the Physically Handicapped." Therapeutic Recreation Journal 10:1: 27-30; 1976.

This study was designed to ascertain if selected projects funded by the Bureau of Outdoor Recreation (BOR) met minimum standards for accessibility for persons with physical impairments, disabilities, and/or handicaps. Of the thirty-nine projects in Planning Regions 3, 4, and 5 in the State of Georgia funded by BOR between January, 1970 and December, 1974, five were randomly selected for evaluation. A checklist developed from the American National Standards Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped was used to indicate the degree of accessibility and usability of buildings for persons with physically handicapping conditions. A tabulation of all of the projects indicated that only nineteen percent of the minimum standards for accessibility were met, while sixty-three percent did not comply with the minimum standards. The researcher concluded that (1) there is little adherence to the guidelines adopted by BOR in regard to making buildings accessible to and usable by persons with physical handicaps, (2) a need exists for some type of enforcement of these guidelines, and (3) the ANSI Standards were largely inadequate to ascertain the degree to which the BOR funded projects were accessible to and usable by persons with physically handicapping conditions.

22. "Fish Creek Falls Discovery Trail." Northwest Colorado BOCS Newsletter, 1-2; October 23, 1975.

    Unique nature trail constructed at Fish Creek Falls near Steamboat Springs, Colorado, designed especially for those with learning disabilities and intellectual handicaps is described.

23. Floyd, John Alex, Jr. An Investigation into the Physical and Psychological Response of the Visually Handicapped to Some Selected Woody and Herbaceous Plant Material. Unpublished master's thesis. Clemson, South Carolina: Clemson University (29631), March 1972.

24. Garvey, Joseph J. "Touch and See." Parks and Recreation 4:11: 20-22; November 1969.

    The Touch and See Nature Trail at the National Arboretum in Washington, D. C., gives the blind visitor an opportunity to explore his surroundings on a path through a native hardwood forest. The blind person is led along the 820-foot long trail by a guide rope. Stations at intervals provide information in Braille about the surroundings.

25. ______. "Touch and See Nature Trail." Science and Children 6:2: 20-22; October 1968.

    Describes a 1640 foot nature trail that can be used by visually impaired as well as sighted persons at the National Arboretum in Washington, D. C.

26. Goldreich, Joseph D. "Recreation Island Being Designed for Children." Consulting Engineer 46:5: 93-97; May 1976.

    National Children's Island (Washington, D. C.) will provide a central place of art, education, culture and heritage for children as well as serve as a headquarters for national groups whose primary interest is in child development.

27. Hooper, Lennon W. National Parks Trails--Analytical Report on Trails in Areas of the National Park System. Denver, Colorado: National Park Service, Denver Service Center (P. O. Box 25287, 80225), 1973.

28. Hovick, L. "Building Camp Facilities for the Handicapped." Recreation 52: 94-96; March 1959.

29. Illinois Division of Parks and Memorials. Facilities for the Physically Limited and Handicapped. Springfield, Illinois: Illinois Department of Conservation (State Office Building, 62706), 1973.

This booklet catalogues the eighty-two state parks and twenty-nine historical memorial areas as to their accessibility for the handicapped. Although not all of Illinois' public recreation facilities can meet the needs of individuals with handicapping conditions, efforts have been made for all new facilities projected or under construction to be designed with provisions for individuals with handicapping conditions.

30. Information and Data Base Report for 1975-1980 Ohio Outdoor Recreation Plan, Department of Natural Resources, State of Ohio. Columbus, Ohio: Archlab Consultants (Box 4595, Tri-Village Station, 43212), n.d.

In a 1973 study of recreational facilities for handicapped and aged populations in the United States conducted by the State of Ohio, it was found that approximately twenty-five percent of the forty-nine other states had studied recreation for special populations. The majority of these reports were found to be admittedly inadequate by the states themselves. Separate outdoor recreation facilities for special populations were reported by seven states: Washington, Minnesota, Tennessee, Maryland, Georgia, South Carolina, and Florida. Twelve states reported having modified outdoor recreation facilities. States having planned outdoor recreation facilities with special populations in mind include Washington, Idaho, Oklahoma, Florida, Maryland, and Massachusetts. It was concluded that, at the time of the study, legislation and executive orders dealing with outdoor recreation for special populations was minimal and confined for the most part to general facility design standards and fee reductions. In surveying special population agencies in Ohio to determine their degree of involvement in outdoor recreation activities, the request for assistance in meeting client needs most often given was for architectural modifications. A need for more equipment, facilities, and programs was also demonstrated. This study approach caused the authors to become dissatisfied with the traditional disease history or diagnosis classification of the Ohio population. They found nothing to indicate a relationship of any kind between disease history or diagnosis and the needs of the outdoor recreation decision maker. It was concluded that medically oriented information such as diagnosis of illness can be both harmful and confusing information for the non-medical planner.

31. "Ingenuity Brings Camp to More Kids." Camping Magazine: 40; September/ October 1968.

    Discusses building two-story facilities so that they can be entered at ground level on both floors. A heated swimming pool is described and suggestions on providing ramps for wheelchairs are given.

32. Jorgenson, Jay. Landscape Design for the Disabled. McLean, Virginia: American Society of Landscape Architects Foundation (1750 Old Meadow Road, 22101), 1975.

    Designs for outside spaces and recreational areas that will be accessible to physically impaired and disabled individuals as well as more functional for able-bodied persons are presented. Designs for parking areas, curb cuts, walks, ramps, stairs, convenience facilities, playgrounds and camping facilities are discussed. Also included are a discussion of dimensions and space requirements for maneuvering of wheelchairs and other mechanical mobility aids, and a bibliography.

33. Knorr, John. A United States Guide to Nature Centers and Trails for the Visually Handicapped. Madison, Wisconsin: Center for Environmental Communications and Environmental Studies (602 State Street, 53703), 1973. 14 pp.

    This guide lists nature centers and trails for visually handicapped individuals by state. It lists the facility, name, location, administering agency or organization, trail length, land base of the area, and availability of special interpretive programs. Also included is a list of fragrance gardens in the United States and a supplemental list of references to provide additional background information on interpretive services for the blind.

34. Leonard, Edmond J., editor. "National Parks/New Day for the Handicapped." Report 2:2: 4-5; March 1976.

    Details increased opportunities for physically handicapped persons in national parks. Of 286 areas in the system, 266 are accessible. Specific parks are briefly described. (Article reprinted with permission from *Inside Interior* newsletter of employees of the United States Department of Interior, November-December 1975.)

35. Lewis, Robert B. "A Self-Guiding Nature Trail for the Blind." Outdoor Recreation Planning for the Handicapped. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), 1967. 43 pp.

    A description of the self-guiding nature trail located near Aspen, Colorado, is provided along with an account of the importance of providing such facilities in the outdoor environment for blind individuals.

36. Maryland Department of Natural Resources Capital Programs Administration, Land Planning Services. Draft Master Plan: Greenwell State Park. Annapolis, Maryland: the Department (Tawes State Office Building, 21401), July 1976.

Greenwell State Park, a southern Maryland outdoor setting which will encourage use by individuals with handicapping conditions and able-bodied alike, is currently in the final planning stages. Goals and objectives of the project, an environmental assessment statement, and descriptions of potential users are presented. Such plans as development, management, final site plan, and capital program plan are also included.

37. Masek, Marshall. "Trails, Playgrounds, and Activities for the Handicapped." Expanding Horizons in Therapeutic Recreation III, Gary Robb and Gerald Hitzhuzen, editors. Columbia, Missouri: University of Missouri (348 Hearnes Multipurpose Building, 65201), 1975.

Presents suggested ways of improving architectural accessibility of recreational areas and facilities. Describes construction of a trail accessible to all in Elephant Rock State Park in Iron County near Ironton, Missouri.

38. Mills, Emerson D. The Design of Public Outdoor Recreation Facilities to Accommodate the Handicapped. Master's thesis. Ann Arbor, Michigan: University of Michigan (48104), 1973.

39. National Council of the Churches of Christ in the U.S.A. Site Selection and Development: Camps, Conferences, Retreats. Philadelphia, Pennsylvania: United Church Press (1505 Race Street, 19102), 1965. 174 pp. $12.50.

Although the special needs of physically impaired or aged persons are not mentioned specifically, this book is a basic reference on all details of camp planning and constructions. Checklists and a summary of standards are included.

40. National Easter Seal Society for Crippled Children and Adults. Easter Seal Standards for Camps Serving the Physically Handicapped. Chicago, Illinois: National Easter Seal Society (2023 West Ogden Avenue, 60612), 1973.

41. National Park Service. National Park Guide for the Handicapped. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office (20402), 1971.

42. "National Parks--New Day for Handicapped." Winning Wheels, Inc. News, pp. 2-3; March 1977.

Discusses progress that has been made in making national parks accessible to physically handicapped individuals. Several examples are cited.

43. "Nature Trail for the Senses." Trends in Parks and Recreation, pp. 27-30; July/August/September 1974.

Describes the La Pasada Encantada Trail (Enchanted Path) in Lincoln National Forest in Alamogordo, New Mexico. This interpretive trail offers all visitors a range of sensation, and is arranged for easy access by visually impaired persons. The quarter mile long trail has a low pole railing placed eight inches above the ground with interpretive stations along the way. All signs are in large print or in Braille. Text of exact wording from signs on the Enchanted Path is presented.

44. Nielsen, Ruth M. "Forest Service Facilities for Wheelchair Nature Lovers." Paraplegia News 25:286: 8-9; July 1972.

Describes two National Forests that have specific provisions for wheelchairs: Inyo National Forest on the Eastern Slope of California's Sierra Nevada Range, and the Trout Pond Recreation Area in the Apalochicola National Forest. Features found at both areas include the following: (1) gently sloping, wide, paved trails and paths and paved walkways to rest rooms; (2) picnic tables with spaces for wheelchairs; (3) low water fountains; (4) fishing piers protected with guardrails; (5) rest rooms without entrance steps with enough space inside to maneuver wheelchairs, cubicles with wide doors, handrails and benches, and special clothes-changing facilities.

45. Northwest Colorado BOCS Child Study Center. Fish Creek Falls Discovery Trail Replication Manual. Steamboat Springs, Colorado: the Center (Box YY, 80477), n.d. 14 pp.

Describes an unusual project which involved designing and constructing a nature trail which could be used and appreciated by people with learning disabilities and intellectual handicaps. It was designed to present individuals of limited intellectual and learning abilities with basic elements of their natural environment. This was planned in such a manner as to reduce the amount of written language and technical terminology by utilizing more meaningful methods of communication.

46. "Recreation Facilities." Committee on Barrier Free Design Newsletter 3: 2; February 1971.

Under the Watershed Protection and Flood Prevention Act, the Soil Conservation Service of the U. S. Department of Agriculture provides technical and financial assistance to state and local governments for the development of public recreation facilities in small watershed projects. Guidelines in meeting the requirement that, insofar as possible, these facilities are to be designed and constructed so as to be accessible to the handicapped are presented.

47. A Report on Architectural Barriers in Indiana State Parks. Indianapolis, Indiana: Task Force to Study Architectural Barriers, Council of Voluntary Organizations for the Handicapped in Indiana (Indiana Association for Retarded Children, Inc., 752 East Market Street, 46202), 1971.

The Indiana State Park System is assessed and recommendations to improve facilities for individuals with handicapping conditions are made.

48. Resnick, Rose. "The Specialized Camp as Preparation for Integration." New Outlook for the Blind 66:10: 374-376; December 1972.

Adaptations of regular camping situations including specially trained staff and barrier-free design are discussed in terms of providing specialized camping experiences for blind children. Importance of such experiences for future intergration of children into regular camps and other situations is stressed.

49. Ries, Michael L. Design Standards to Accommodate People with Physical Disabilities in Park and Open Space Planning. Madison, Wisconsin: Recreation Resources Center, University of Wisconsin-Extension (1815 University Avenue, 53706), 1973. 76 pp.

The design recommendations in this manual were compiled to assist park designers and administrators in providing park and open space facilities that are usable by people with physical disabilities. Types of physical limitations are briefly discussed, followed by details on architectural and site specifications. Specifications are presented on pedestrian and vehicle traffic, buildings and utilities, furnishings, recreation facilities, and play areas. An appendix further explores construction materials. There is an extensive bibliography.

50. Robb, Gary M. "Camping for the Physically Handicapped--A Rationale and Approach." Rehabilitation Literature 34:5: 130-133; 1973.

51. Rutledge, Albert J. Anatomy of a Park: The Essentials of Recreation Area Planning and Design. New York, New York: McGraw-Hill, 1971.

This basic textbook presents a system for evaluating a park design plan. It is addressed to such nondesigners as lay members of park boards, park directors and superintendents, recreation leaders, and university faculty and students. Emphasis is on evaluating plan drawings because this is the form in which most solutions are presented by designers. If one can understand what to look for in drawings, this knowledge will be of value in judging a constructed work.

52. Shivers, Jay S., and George Hjelte. "Camp Planning." Planning Recreational Places. Rutherford, New Jersey: Fairleigh Dickinson University Press, Inc. (67070), 1971. pp. 309-318.

Information on site selection and campsite design criteria is presented in this chapter.

53. Shivers, Jay S. "Rationale for an Outdoor Recreational Learning Facility for the Mentally Retarded." Therapeutic Recreation Journal 4:2: 26-32; Second Quarter 1970.

Describes creation of an outdoor learning facility at Mansfield State Training School in Connecticut. The facility was designed for the general resident population under age twenty-one at the School, which ranged from profoundly to educable mentally retarded with some multiple handicapped individuals. A primary level and outdoor instruction area was mainly for individuals needing constant supervision and contained equipment for instruction in such fundamental skills as going up and down stairs, balancing in different positions, walking on different surfaces, and crawling. A secondary level play area contained a story book playground with opportunities for fantasy play. An adventure apparatus area consisted of a tree climber, dragon, pyramids, tunnels, mazes, a log block house, and slide with rope swings, semi-shelter, and star climber. This equipment was designed to develop balance, kinesthetic awareness, coordination, physical fitness and motor skills. A children's village section was designed to teach safety habits through play with wheeled vehicles on facsimile roads. A scaled-down village provided opportunities to learn such activities of daily living as going to the store, counting change, and participation in civic affairs. Other features of the outdoor recreational learning facility included a nature area, horticultural area, and a sensory nature trail.

54. Shugrue, Sylvia K.; Walter M. Morris; and Carolyn H. Kuhne. "Braille Trail Model." Science and Children 6:2: 23-24; October 1968.

Describes the construction of a three-dimensional model of the "Touch and See Nature Trail" at the National Arboretum. The topographical model gave blind children an opportunity to feel the lay of the land and handle specimens of various models. Fifth and sixth grade students interested in science and mathematics at the Ruth K. Webb School in Washington, D. C., constructed the model.

55. Special Issue: Trends for the Handicapped. Trends in Parks and Recreation, July-August-September 1974.

This publication presents information on making parks and recreation areas accessible to individuals with handicapping conditions. Interviews with physically impaired athletes provide information on their recreation needs. The need to plan *with* impaired, disabled, and handicapped individuals as well as *for* them is stressed. A sensory nature trail and a recreation area designed for persons with handicapping conditions are described.

56. Spinelli, Anthony. "Successful Trails for the Blind." Journal of Environmental Education 3:4; Summer 1972.

57. Spinelli, Anthony, and J. Earley. "Dual Nature Trails Use Both Braille and Printed Markers for Use of Visually Handicapped Campers." Camping Magazine 44:19; March 1972.

58. State and Urban Parks. Report (National Center for a Barrier-Free Environment Newsletter) 2:2: 5; March 1976.

A description of state and urban parks is provided. Greenwell State Park in Maryland will include a therapeutic horseback riding program as well as opportunities for boating, fishing, crabbing and shell fishing. Los Angeles County is described as having all of its park and recreation facilities completely accessible.

59. Stone, E. H. "There's a Wheelchair in the Woods." Parks and Recreation 6:12: 19-21, 48-49; December 1971.

Self-guiding trails and other outdoor recreation facilities designed by the U. S. Forest Service for use by disabled persons are discussed. Detailed descriptions of the Roaring Fork Trail near Aspen, Colorado, the Mammoth Lakes Campground in the Inyo National Forest in the Sierra mountains, and the Trout Pond Recreation Area in Western Florida are provided. These facilities include paved trails and paths, picnic tables with guard rails, and rest rooms adapted for wheelchairs.

60. The United States Department of Agriculture-Forest Service. Descriptive Notes on Trout Pond Facilities. Tallahassee, Florida: Forest Supervisor (214 South Bronough Street, Box 1050, 32302), n.d. 7 pp.

Special facilities for individuals with handicapping conditions at the Trout Pond in Florida National Forest near Tallahassee are described. Nature trails especially constructed for wheelchair users are among those facilities provided.

61. United States Department of Agriculture-Forest Service. Planning a Facility for the Handicapped: Mammoth Lakes Campground. Mammoth Lakes, California: USDA-Forest Service, Inyo National Forest, Mammoth Ranger District (93546).

Describes in detail facility and design of Mammoth Lakes Campground for the Handicapped (California, 300 miles north of Los Angeles). The Campground provides outdoor recreational opportunities for impaired individuals with the objective to construct facilities to accommodate handicapped people but yet to be similar to facilities used by non-handicapped persons. Among facilities provided are the campground, fishing pier, and nature trail.

PLAYGROUNDS

Research indicates that play can be an effective medium that contributes positively to the physical, mental, emotional, and social development of children. In his studies, Piaget suggested that much of what is called play really is an integral part of the active process in the development of intelligence in children. During play, children learn by experimenting, doing, and experiencing. Some children with certain handicapping conditions may need opportunities for play in physically safe and psychologically secure environments more than their non-involved friends and classmates. Since children with such handicapping conditions have the same basic developmental needs as other children, it is important that their play experiences be of the same quality and quantity as those available to nonhandicapped children. Needs of all children include opportunities to develop perceptual and conceptual skills, emotional responsiveness, gross and fine motor abilities, language skills, adequate levels of physical fitness, perceptual-motor functions, sensory-motor integration, and appropriate social interactions with others.

Regular public playgrounds should be accessible to and usable by handicapped individuals. Integrated play facilities provide the optimal play experience for handicapped and nonhandicapped children, although not all handicapped children are ready to be thrust into such a situation. According to Wallach, "...by placing children in separate play settings we create strangers out of possible friends." (61) A lack of social developmental experiences with other children can isolate children with handicapping conditions from their able-bodied peers. Kinds of experiences gained by integrated play could lessen the gap created by lack of adequate play and other social developmental experiences. Children exposed to realistic social goals, expectations, and behaviors at an integrated play facility can be expected to function accordingly. Able-bodied children also gain from the experience of seeing that persons with handicapping conditions are more like themselves than they are different. Studies have shown that it is easier to develop positive attitudes in children when they are young than to try and change negative attitudes in later years. By building new playgrounds in which at least some portion of play equipment can be used by all children, this type of learning and interaction will take place naturally.

Playground Equipment

Playground equipment is available in almost every imaginable shape, size, color, or style. This equipment may be purchased from a multitude of commercial equipment manufacturers and distributors or made by hand. Design style ranges from traditional to modern with some styles in-between.

Traditional playground equipment--swings, slides, see-saws, merry-go-rounds, and junglegyms--is usually made of metal and set in concrete. These hard surfaces can be dangerous for any child, especially since children usually find more than one way to use a piece of equipment. For example, on a slide children will try going down backwards, head first, lying on their stomachs, or standing up. Going up the slide instead of the ladder may seem more exciting to a child. The height of a traditional slide thus becomes a safety hazard. Since only one child at a time can stand on the small platform at the top, a hesitant child can easily fall off or be pushed by eager children who won't wait their turn.

The traditional swing made of metal or wood is difficult to control. Since height may be difficult to judge, accidents can occur when children try to stop or jump out of swings, or when younger children walk in front of or behind them. Standing up or lying on one's stomach on a swing can also be dangerous.

Each piece of traditional equipment can only accommodate a small number of children at any one time. Children waiting their turn can get hit by a flying swing or teeter totter. Waiting one's turn and standing in line can also inhibit freedom and spontaneity in playing. In addition, developmental potential and contributions of these traditional playground devices are questionable. Many people look upon equipment of this type as little more than passive baby sitters.

Austin cautions that haphazard placement of play equipment does not create a worthwhile play environment. Creative play activity is encouraged by "...purposeful grouping of carefully chosen equipment and the right apportionment of experiences..." (15, p. 29) Austin also feels that the arrangement of equipment in a play environment is the most important element in the planning process.

Modern playground equipment is usually more abstract and non-specific than traditional equipment. It is designed for more than a single activity and is thus more versatile. In most cases the equipment does not move; instead the children do. Playground manufacturers are now experimenting with free-form climbing units and multi-directional swings and slides as part of larger climbing units.

A style of playground equipment that falls somewhere between traditional and modern includes rocket ships, fire engines, animals, clowns, and Mother Goose characters. This equipment has been called *over-elaborate*, *too clever*, and *an adult's idea of a fantasyland*. According to Friedburg, a playground designer and landscape architect, "...novelty in itself has little lasting attraction; the painted fire engine and ingenuous play sculpture are pleasant enough and have reasonable play value for a short time. But they ultimately have no lasting play value for the normal child with a lively imagination and short attention span." (25)

Various factors to consider when choosing playground equipment include:*

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*Material adapted from *Planning Playgrounds for Day Care* (Atlanta, Georgia: Southeastern Day Care Project, 130 Sixth Street, N. W., 30313, November 1973).

- *Adaptability*--meets physical and cognitive needs of users; fits into overall design of playground; fits into long-range plans.
- *Cost*--is worth the expense.
- *Desirability*--children use the equipment and continue to use it after novelty has worn off.
- *Destructability*--will last as long as you want it to last.
- *Maintenance*--does not require more time than you can spare to build or maintain.
- *Flexibility*--can be modified to meet changing needs; serves more than one purpose.
- *Play Values*--challenges children, holds their interest, and encourages development of various abilities.
- *Safety*--is solidly constructed and of sound design.
- *Size*--is scaled to the size of the users.

Do-It-Yourself Playgrounds

An important decision to be made in planning playgrounds is whether to buy or make equipment and devices. Both manufactured and homemade equipment have advantages and disadvantages. Manufactured equipment may be more durable and vandal-proof than homemade equipment; it usually requires less maintenance and is harder to destroy or steal. The fact that such equipment is already built and ready-to-use might be an advantage in those situations in which a program is needed immediately. Children who come from less affluent homes may like things that are shiny and look store-bought. On the other hand, this type of equipment generally has a much higher cost than homemade pieces and may require a charge for installation as well. Equipment sizes may be standardized so that one size must do for all users. Manufactured equipment is often made of metal which becomes very hot in summertime and cold in winter.

Lower cost is certainly an advantage of homemade equipment. Designers and builders can make this type of play apparatus more innovative, imaginative, and appealing than equipment purchased from playground suppliers, as well as being more responsive to needs of a particular program and population. As children outgrow certain items, they can be removed or replaced at less cost. In addition, devices of different sizes can be made and installed according to needs and abilities of children using the playground facility. Wood, a common material in homemade play apparatus, has the advantage of not conducting heat or cold as much as metal. A final and important advantage of using homemade as opposed to manufactured equipment is the builders' feelings of confidence and pride in their efforts that comes from participating in such a project. Community spirit, cooperation, and positive interaction among parents and children are all probably benefits of do-it-yourself playgrounds.

However, disadvantages of making playground equipment must also be considered. Building a playground may take more time, effort, or even money in the long run than are worthwhile. Homemade equipment does not always last as long as manufactured structures. Wood requires greater preparation and maintenance at more frequent intervals than metal. Often donated wood used in do-it-yourself projects is of second rate quality and needs to be treated or painted regularly. Edges and surfaces must be smoothed. Even with regular maintenance, wood does not last as long as metal and needs to be replaced more often.* (refers to footnote p.88)

Materials for do-it-yourself playgrounds include:

- *Concrete drainpipes* can be used for tunnels or mazes.
- *Large rocks* can be used for climbing apparatus.
- *Metal barrels* have various uses; i.e., climbing, sliding, crawling.
- *Old cars, trucks, train cars, airplanes, motorcycles* provide opportunities for climbing, role playing, exploration, and fantasy play.
- *Pipe* can be welded to form climbing structures in a variety of shapes.
- *Railroad ties* can be embedded in level ground or hills for climbing or steps.
- *Rope* can be used for suspension bridges, long draped cords, cargo nets, or swings. Manila rope is hard to obtain and tends to fray; nylon or plastic cords and webbing are more durable.
- *Sand* needs to be washed and replaced periodically but provides a safe natural cushioning material.
- *Telephone poles* can be used for balance activities, as supports for various devices, and in a variety of creative and innovative ways. They should not be soaked in creosote coal tar (applied to prevent rotting) because this runs out of wood in warm weather and is not safe to eat.
- *Tires* are free or inexpensive and can be used in a multitude of ways for rolling, climbing, balancing, vaulting, pulling, and in games, relays, group and individual activities. Tires can be painted in various ways. Drill drain holes in them to let water escape.

- *Trees* can be laid horizontally or set in ground vertically and used for climbing, balancing, hanging, swinging, as well as in a variety of individual and group activities. Branches should be bolted together for stability.

The bibliography of resources at the end of this chapter includes numerous excellent sources on building a playground. For additional information on do-it-yourself playgrounds, contact:

Playground Clearing House, Inc.
26 Buckwalter Road
Phoenixville, Pennsylvania, 19460

Adventure Playgrounds

The adventure playground concept originated in Denmark in 1943 during the German occupation. Professor C. T. Srenson, a landscape architect, was impressed that children would rather play with waste articles in junkyards than with apparatus on playgrounds. He started the Emorup waste material playground in a new housing development outside Copenhagen. Since that time, adventure playgrounds have been built mainly in England and other European countries. Although less common in the United States, the movement has gained momentum in recent years.

In this type of playground, an outdoor setting is provided in which children are allowed and encouraged under the supervision of an adult play leader to build their own playground. Tools and scrap materials are provided and imaginative play apparatus planned and constructed by the children. Buildings can be constructed and torn down; safe hidden areas can be created for resting and privacy. Various materials challenge children to put things together in new ways. After utilizing structures for play, the children modify or completely reconstruct the play environment to accommodate their new interests. Thus, an ever-changing play area is periodically created by and for the children who utilize it.

Adventure playgrounds differ significantly from one another since they are influenced by country, site features, desires of users, imagination of leaders, and the amount of money available. They share a common purpose--to enable children to handle malleable materials in their own ways in free, permissive environments.

Children with handicapping conditions can also enjoy and benefit from adventure playgrounds. Partly because of their physical, intellectual, or emotional impairments, but also due to lack of opportunities to explore their environments, these children often lack sensory experiences. Adventure playgrounds encourage development in the areas of movement and perception. By providing informal and stimulating materials, adventure playgrounds can help children develop perceptual skills necessary for formal education as well as for daily life.

It is important to plan playgrounds and buildings that challenge children to use their whole bodies. Lady Allen of Hurtwood (England) suggests that the playground building should consist of one large room with several small rooms whose size and purpose can be altered and adjusted as needs arise. A small quiet room can be reserved for activities that call for concentration and peace. Bathroom facilities need to be large enough to accommodate wheelchairs and should have grab bars and sinks and mirrors which can accommodate wheelchair users. On the playground itself, landscaping can provide a variety of levels and textures through use of plants, trees, grass mounds, slides, ramps, steps, sand, digging areas, and water. Changing interests and attention spans of children necessitate flexibility of design.

One of the few adventure playgrounds in the United States is located on the grounds of Fairview State Hospital in Costa Mesa, California (92626). A modified version of the original Scandinavian concept, this adventure playground is an environment where mentally retarded children can freely develop their own creative ideas of play. By touching, climbing, skating, and swinging, they have opportunities to gain confidence and self-discipline under supervision of hospital staff.

Children ride plastic tricycles around a mini-track called the Fairview 500, climb ropes to develop coordination, play on a raft made of pieces of non-slivering logs, and go down a slide into a homemade water bed. The playground was designed by Daniel Ring, a former graduate student assistant in child development who studied the concept in Sweden.

Additional information on adventure playgrounds may be obtained through sources listed in the bibliography, page 95, or from the following:

- Adventure Play Association, P. O. Box 5430, Huntington Beach, California, 92646.
- Bibliography and source list on adventure playgrounds, available from the Department of Physical Education, Recreation and Health Education, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, 53201.
- Lani Van Ryzin and Gary Moore, Department of Education Administration, University of Wisconsin, Madison, Wisconsin, 53706, who have information on a book of conference papers, case studies, and suggestions for planning and implementing adventure playgrounds that may be published.

Therapeutic Playgrounds

Therpeutic playgrounds are purposefully designed to help users develop specific skills, including physical, perceptual, emotional, social, and educational skills. Not all handicapped children will need a therapeutic playground. Those who are engaging in play behavior readily with their peers and who have accessible play facilities need no intervention. However, children in rehabilitation hospitals or who are severely mentally, physically, or emotionally handicapped may need the help of a special facility in learning to play.

Like any playground, the therapeutic playground must be equipped with stable and safe apparatus. Handholds, footholds, and resting places are essential for the handicapped child, providing support and allowing for rest when needed. It is also important that equipment not become a barrier to communication between children--provisions for cooperative play are a must, especially when children with communication disorders (visual, auditory, or speech) are using the facility. Ideally, the therapeutic playground will:

- Allow children freedom of movement within a space that takes into consideration their physical abilities and limitations;
- Allow space for both solitary and cooperative play;
- Consist of various textures and shapes that stimulate the child's fantasy life;
- Challenge the child physically and perceptually to enhance development.

Therapeutic Playgrounds: Examples

The Jessie Stanton Developmental Playground
for Preschool Handicapped Children
Institute of Rehabilitation Medicine
New York University Medical Center
400 East 34 Street
New York, New York, 10016

This therapeutic playground was developed as an extension of an indoor educational program for physically impaired and disabled preschoolers. It was based on the philosophy that these children want to and are entitled to enjoy as best they can the same activities that able-bodied children choose and enjoy. A tendency toward passivity in relations with people and objects had to be considered. Effort was made to design environments that would encourage young children who had restricted mobility, reduced stamina, depressed motivation, and fear of failure to interact more intensely with people and objects in their surroundings and to derive satisfaction and a sense of self-worth as well as to develop new abilities from these interactions.

Clear delineation among activity areas was made to encourage ordering and organization of stimuli for young children who often have difficulty choosing from the multiplicity of coexisting stimuli available. Four specific areas were created.

- *Bridged treehouses* offer an assortment of increasingly more difficult approaches and exits accessible to children with varying skills. Spatial relationships, heights, perspective, and concepts of position can be explored.

- *Foam mattress area* is available for children who are unable to walk or sit alone without support. Here a child can be prone but still experience a sense of open space in the out-of-doors. Nearby is a large *sand pit* at ground level. Handrails along the sides help children maintain balance as they get into and out of the area by themselves.

- *Sand trays* and *water tables* are at graded heights which allow individuals in standard wheelchairs of three different heights to sit closely and comfortably at the tables.

- *The hill and hill circle* consists of a grass hill surrounding a tree that is graded for crawlers and climbers to ascend, roll down on grass, or slide down a protected *fiberglass slide*. The hill circle around the base of the tree provides a quiet area for children engaged in individual play or group interaction.

The Magruder Environmental Therapy Complex
Forrest Park School
600 Silver Star Road
Orlando, Florida, 32801

The Magruder Environmental Therapy Complex is a specialized play area at Forrest Park School (Orange County, Florida) for preschoolers with handicapping conditions. This project was designed to provide a play situation in which these children could function on their own regardless of the extent of their disabilities and could have motor experiences similar to those of able-bodied children. The Environmental Therapy Complex consists of a variety of stairs, slopes, and slides; tunnels to crawl through, holes to hide in, a foam pit for jumping, falling, and bouncing; chalking surfaces, mirrors, and bright colors to simulate the eye. Stationary and portable shapes of every type invite imaginative play. The complex is designed to allow for change and experimentation by staff members and children alike since these children have usually been denied opportunities to move large objects in space.

Outdoor Learning Center of the Nisonger Center
The Ohio State University
Columbus, Ohio, 43210

The Outdoor Learning Center at Ohio State University was designed to enhance motor and social interaction skills of children aged six months to eight years. Guiding planning, organization, and implementation of the Outdoor Learning Center was the concept that all children have the same basic play needs and, therefore, similar types of learning experiences are necessary in the normalization process.

The gross motor activities area consists of hard and gravel pavement areas, a playhouse approachable only by traversing various slopes and surface textures--some of which are accessible to wheelchairs--and a heavy suspension beam to support climbing and swinging apparatus. Work tables and a small stage are located in the small-motor activity area. A work/play activity area contains a small vegetable garden, orchard of fruit trees, and zoo. An area for perception and nature study includes a grass covered earth mound for student seating and a teaching area with space for apparatus to articulate senses of sight, touch, and hearing and their relationships to nature.

Play Learning Centers for Preschool Handicapped Children
Physical Education Program
University of South Florida
Tampa, Florida, 33620

As part of a three-year Bureau of Education for the Handicapped research and demonstration project, three play-learning centers have been constructed in Tampa, Florida.

- *United Methodist Preschool Center* consists of several interlocking, multi-level, brightly colored table tops. The basic structure is approximately 340 square feet and cost $1,300 to build. It is used by two groups of mentally retarded children, ages four to five years, as well as other neighborhood children.
- *United Cerebral Palsy Preschool Center,* which cost $2,100 to build, consists of stairs, inclines, and slides in various colors and textures (foam, wood, carpeting). It is used by children with various orthopedic and neurological disorders.
- *Residential Treatment Play Learning Center* is used by pre-adolescent and adolescent emotionally disturbed youngsters. It consists of an elevated deck under trees, with a ladder, pole, slide, and rope net for access and exit. Nine emotionally disturbed boys helped design and construct the Center, which cost about $660.

Playgrounds: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137 to 140.

1. Aaron, David, and Bobbie P. Winawer. Child's Play, A Creative Approach to Playspace for Today's Children. New York, New York: Harper and Row, 1965.

Brief historical and philosophical treatment of the child's world of play. Inexpensive and functional designs as well as abstract play sculptures are illustrated with photographs.

2. Abernethy, W. D. "The Adventure Playground...Opportunity to Learn for Living." IRA Bulletin 15:3: 4-5; May/June 1972.

   Discusses the educational potential of adventure playgrounds. The author defines education as a question of learning to live with oneself, with other people as individuals or in communities, and with leisure and relates the adventure playground concept to each of these tasks.

3. An Adaptive Playground for Physically Disabled Children with Perceptual Deficits: The Magruder Environmental Therapy Complex. Orlando, Florida: Orange County Board of Public Instruction, Forrest Park School (600 Silver Star Road, 32801), n.d.

   The Magruder Environmental Therapy Complex is a specialized play area for physically impaired and disabled preschool children of Forrest Park School in Orange County, Florida. It was designed to provide a play situation in which disabled children could function by themselves, regardless of the extent of their physical disabilities, and could have motor experiences comparable to those of able-bodied children.

4. Adkins, Patricia G. A Priceless Playground for Exceptional Children. El Paso, Texas: Learning Resources Press (609 LaCruz Drive, 79902), 1973. $1.50 each, plus 0.25 postage and handling.

   A *fun* and therapeutic playground, built by volunteers and fathers of children in the Early Learning Center for Exceptional Children (El Paso), is described. Discarded materials and readily available materials were used in construction; no commercial playground equipment was purchased. Author details the construction of each piece of playground equipment and its contribution to the normal or handicapped child's perceptual and motor growth and development.

5. Adventure Playgrounds and Children's Creativity. Report of the Sixth International Conference held at University of Bucconi, Milan, Italy (August 31 - September 6, 1975). Sheffield, England: International Playground Association (12 Cherry Tree Drive, S11 9AE), 1976. 36 pp.

6. Allen, M. (Lady Allen of Hurtwood). "An Adventure Playground for Handicapped Children in London." Early Childhood 3:2: 70-77; 1971.

   An adventure playground for the enjoyment and sensory-motor training of London children with mental, physical, or emotional disabilities is described. Facilities, staffing, programing, and administration of the playground are discussed.

7. ______. Design for Play. London, England: Housing Center (13 Suffolk Street, S.W.1), n.d.

8. ______. New Playgrounds. London, England: Housing Center (13 Suffolk Street, S.W.1), n.d.

9. Allen, M. (Lady Allen of Hurtwood). *Play Parks*. London, England: Housing Center (13 Suffolk Street, S.W.1), n.d.

10. ______. *Planning for Play*. Cambridge, Massachusetts: The MIT Press (50 Ames Street, Room 741, 02142), 1968.

    This photographic account of children in action was designed to explore some of the ways of sustaining the innate curiosity and natural gaiety of children. Ideas for play areas through which a child may move and have opportunity to progress from simple to complex pursuits are presented. Also included is a section on play for children with handicapping conditions.

11. ______. "Playgrounds." *Speech*. New York, New York: U. S. National Committee for Early Childhood Education (81 Irving Place, 10003), n.d.

12. ______. *Space for Play*. New York, New York: U. S. National Committee for Early Childhood Education (81 Irving Place, 10003), 1964.

13. ______. *Two to Five in High Flats*. London, England: Housing Center (13 Suffolk Street, S.W.1), n.d.

14. Anderson, Donald A. "Needed: Specific Standards and Recommendations for Playground Apparatus." *AALR Reporter* 2:3: 7; January/February 1977.

    Most public school personnel were not trained to deal with the multitude of playground equipment available on the market today. Lacking any reference material, they must rely on experience and intuition to guide their decisions. Needed is a massive information pool involving data from thousands of schools that would provide specific details on such matters related to equipment as size, cost, best setting, material to be used under apparatus and reasons for its use, safety considerations and problems, whether a particular piece is worthy of recommendation. Suggests that AAHPER would be a logical clearinghouse for receipt, compilation and dissemination of such data.

15. Austin, Richard L., compiler. *Playgrounds and Playspaces for the Handicapped*. Austin, Texas: Theraplan, Inc. (P. O. Box 13325, 78711), 1974. 62 pp.

    This publication was written to assist planners, therapists, and administrators in developing free play recreational environments for handicapped children. After defining several handicapping conditions (blindness, epilepsy, muscular dystrophy, etc.), the author outlines ways that a therapeutic play facility can enhance aspects of the handicapped child's growth and development. The benefits of play in general and integrated play experiences in particular are discussed. Considerations for site selection and equipment selection are presented with many photographs. Appendices include a list of equipment manufacturers and specifications for eliminating architectural barriers.

16. Bengtsson, Arvid. Adventure Playgrounds. New York, New York: Praeger Publishers (111 Fourth Avenue, 10003), 1972.

The Scandanavian concept of adventure playgrounds is explored, and information about these playgrounds gathered from experienced people in different countries is presented. Several problems and solutions in existing playgrounds are described and illustrated. Ways in which adventure playgrounds may be integrated into planning and landscaping of new housing areas to create an environment that meets the child's urge to explore, test, and experiment are indicated.

17. ______. Environmental Planning for Children's Play. New York, New York: Praeger Publishers (111 Fourth Avenue, 10003), 1970.

Playground schemes from all over the world are presented with photographs and drawings. Play area planning and problems resulting from urban development are discussed. Suggestions are offered for use of scrap material, sand, water, slides, swings, ropes, and tires as components of playground equipment.

18. Calder, Jean, editor. Discover: Special Issue Playgrounds. September 1972. 82 pp. Available from IRUC in xerox, $8.20. Item number 1181.

This special issue of the Newsletter of the Australian Council of Health, Physical Education, and Recreation Special Interest Section on Exceptional Members of the Community is devoted to practical and functional ways of providing movement, play, and recreational experiences on playgrounds for mentally retarded and physically impaired children. Ideas, suggestions, and examples of successful approaches and programs are contained in separate articles submitted by individuals from all sections of Australia. Clear and concise drawings and illustrations of many devices, equipment, and products make it possible to construct and reproduce each of these items with little difficulty. Emphasis of most articles is upon simple, free, and inexpensive items that can be used in either structured/formal or exploratory/informal approaches. Articles deal with adventure playgrounds, confidence courses, children's play and creativity, special facilities, and specific programs. Dispersed throughout the publication are guidelines, recommendations, and considerations for planning and implementing these programs along with listings of appropriate resource materials.

19. The City of Huntington Beach, California, Adventure Playground "How-To" Manual. Huntington Beach, California: Huntington Beach Recreation and Parks Department (P. O. Box 190), December 1974. 24 pp. Order from Bill Vance, Supervisor, Huntington Beach Recreation and Parks Department, address above. $1.00.

The purpose of this booklet is to acquaint recreation professionals with the many considerations involved in the planning and implementation of an adventure playground. These include philosophy, location, funds, liability, insurance, public support, staff and volunteers, and materials and supplies. In accordance with their assertion that "generally, the best programing is not programing," the only programed activity at the Huntington Park Adventure Playground is overnight campouts. An insert of supplementary information updates the brochure to August, 1975.

20. Dempster, Graham. "Playgrounds" (guest editorial). Discover 5:3: 2-3; 1972.

21. Ellison, Gail. Play Structures. Pasadena, California: Pacific Oaks College and Children's School (714 West California Boulevard, 91105), 1974. 90 pp.

This publication is for children, parents, teachers, architects, school administrators, public parks officials, community-oriented housing developers--anyone interested in building creative play structures. Included are descriptions of projects developed by thirty-two groups which constructed play structures at public and private schools and in urban and rural parks. Several questions to be discussed as part of the design process are presented. These deal with designing with purpose, masterplanning, choosing materials, meeting safety requirements, building the structure, debating over finishes, enhancing existing structures, and stretching the imagination. Architects' drawings and construction directions for large cable spools, tire swing, small cable spools, ropes and poles, climbing dome, tubular slide, motorcycle-tire climber, fort with tunnel, and other play structures are provided to generate discussion and suggest possibilities to inspire planners to design creative structures to meet their own unique needs.

22. "EPVA Co-Sponsors Playground." Paraplegia News 29:337: 13; October 1976.

Architects and landscape designers will compete for a cash prize of $10,000 in a design competition to develop a playground where able-bodied children and those with handicapping conditions can play together. The prize will be awarded to each of the four best playground plans. Eastern Paralyzed Veterans Association and the New York City Parks Department are co-sponsoring the contest.

23. Etkes, Asher B. "Planning Playgrounds for the Handicapped." Journal of Psychiatric Nursing and Mental Health Services 6:6: 339-343; 1968.

24. Friedberg, M. Paul. Handcrafted Playgrounds. New York, New York: Random House (10022), 1975. 121 pp.

This sketchbook of designs is based on two simple premises: anyone can build a playground; and the actual process of building it can be as important as the finished product. It gives the builders, who should include the children for whom it is planned, a chance to shape their environment and create something to answer their specific needs. A wide range of designs is included, from simple tire swings to fairly complex wood structures. Enough technical information is supplied for the sketches to be followed literally or to serve as points of departure according to each reader's own skill and creativity. Such easily found or inexpensively purchased materials as barrels, ladders, cans, lumber, and old tires can be adjusted or rearranged to create endless opportunities for all three major categories of play--physical, social, and cognitive. An activities matrix which presents types of handrafted playground equipment according to major play skills involved in their use is a unique feature of this book.

25. Freidburg, M. Paul. *Play and Interplay: A Manifesto for New Design in the Urban Recreational Environment*. New York, New York: The Macmillan Company (866 Third Avenue, 10022), 1970.

26. Gonda, Maayken. "The Therapeutic Playground--Another Classroom for Children with Multiple Handicaps." *Discover* 4:4: 19-21; 1971.

27. Gordon, Ronnie. *The Design of a Pre-School Therapeutic Playground: An Outdoor "Learning Laboratory"*. Rehabilitation Monograph 47. New York, New York: Institute of Rehabilitation Medicine, New York University Medical Center (400 E. 34 Street, 10016), n.d. $4.50.

The philosophy and design of a playground for pre-school physically handicapped children at the Institute of Rehabilitation Medicine are discussed in this publication. Photographs, text, and detailed drawings illustrate construction materials and general architectural specifications of the playground. A primary rationale for developing the playground was to give very young handicapped children direct experiences outdoors; traditional, inaccessible neighborhood playgrounds denied them these important learning experiences.

28. ______. "Playgrounds Can Be Experience Equalizers." *American School and University* 45: 37-38, 40-41; June 1973.

29. Handicapped Adventure Playground Association. *Adventure Playgrounds for Handicapped Children*. London, England: the Association (2 Paulton Street, S.W.3), 1971.

30. Hayes, Gene A. "Therapeutic Play Facilities for Handicapped Children." *Journal of Leisurability* 2:2: 10-17; April 1975.

Author explores the values of play and describes a *typical* play facility. The elements of a therapeutic play facility, as well as ways to enhance the child's growth and development through facility design, are discussed. Integration of play facilities is encouraged.

31. *Hazard Analysis of Injuries Relating to Playground Equipment*. Washington, D. C.: U. S. Consumer Product Safety Commission, Bureau of Epidemiology (1750 K Street, N. W., 20006), March 1975.

The U. S. Consumer Product Safety Commission estimates that from January 1, 1974, through December 31, 1974, approximately 118,000 persons received hospital emergency room treatment nationwide for injuries related to playground equipment. Others estimate about 45,000 injuries occurred on public playground equipment and about 41,000 on home equipment. In-depth studies of eighty-three public and sixty-two home playground-related injuries indicated the primary hazard pattern involved falls from the equipment. Home playground equipment-related injuries most often occurred on swings and swing sets, while public equipment-related injuries most often occurred on slides and climbing apparatus. Playground surfacing as well as the way the victim landed were factors in the kind and degree of injury incurred.

32. Hogan, Paul. _Playgrounds for Free: The Utilization of Used and Surplus Materials in Playground Construction_. Cambridge, Massachusetts: The MIT Press (02142), 1974. 252 pp.

Primarily a photographic exploration of playground equipment constructed from used, cast-off, and nature's materials; i.e., tires, boxes, logs, and telephone poles, the author elaborates on construction of specific items and indicates where materials and help can be obtained. The need for child-oriented, community-planned, community-built, and community-maintained playgrounds is emphasized.

33. Imhulse, Diane. "Creative Playgrounds--Yes or No?" _Sharings_ 13:5: 3-4; 1971/1972.

Reports on a survey to determine how members of the American Association of Elementary, Kindergarten and Nursery Educators felt about creative free-form play equipment as compared to traditional playground equipment (swings, slides, see-saws). An overwhelming ninety-three percent responded that they favored the use of creative playground equipment, with less than five percent having no opinion. The majority felt this type of equipment accommodated more children, reduced dangerous competitive activity, provided more creativity and more social interaction, was more attractive to children, had the potential for fewer accidents and that the accidents occurring were less severe than on traditional equipment.

34. ______. "The New Look in Playgrounds." _School Safety_ 7:2: 11-13; January/February 1972.

35. _An Instructional Playground for the Handicapped Using Tires as Inexpensive Playground Equipment: Activity and Construction Manual_. Albany, New York: The University of the State of New York, The State Education Department, Division for Handicapped Children, Special Education Instructional Materials Center (55 Elk Street, 12234), n.d.

Equipment for this playground was constructed in a school shop by trainable mentally handicapped students in an occupational education program and their teachers. A primary concern of the playground initiators was that the playground be used to support the students' total instructional process. Construction specifications and installation instructions, as well as activity ideas for use of tires in a variety of configurations, are described in the manual. Benefits of the playground project are listed as self-satisfaction of students, increased interaction between special education and physical education staff, increased interaction between special education classes and students in regular elementary grades, safety of equipment, and low cost (under $400) of the total playground.

36. Kidder, Worden. "A Rebuilt Playground." *Journal of Physical Education and Recreation* 47:7: 16-18; September 1976.

Describes the remaking of an elementary school playground in Minneapolis, Minnesota, by a group of parents. Equipment was chosen according to safety, interest to the children, multiple activity potential, and durability as well as financial considerations. Children with emotional disturbances and physical impairments or disabilities have been among users of this play area.

37. Lederman, Alfred, and Alfred Traschel. *Creative Playgrounds and Recreation Centers*. Revised edition. New York, New York: Frederick A. Praeger Publishers, 1968.

This Guidebook pertains to various aspects of planning and designing playgrounds and community centers and provides discussion of traditional children's playgrounds and leisure centers for young and old. Special projects such as therapeutic playgrounds for children's hospitals and experimental schoolyards are illustrated with photographic and diagrammatic representations. In the section on playground equipment, special emphasis is given to structures that stimulate the child's imagination.

38. Lehrer, Ruthann. "Building Playstructures." *Movement Education* (newsletter) 8:2: 2,4; May 1976.

Guidelines for building one's own playground are given. Such areas involved in the process as diversity, self-directedness, safety, and funding are covered.

39. Lucking, George W. "Play Provision for the Physically and Mentally Handicapped." *Discover* 5:3: 50-61; September 1972.

40. Mahoney, Anton. "What is an Adventure Playground?" *Discover* 5:3: 26-29; 1972.

41. Masek, Marshall. "Trails, Playgrounds and Activities for the Handicapped." *Expanding Horizons in Therapeutic Recreation III*, Gary Robb and Gerald Hitzhuzen, editors. Columbia, Missouri: University of Missouri (348 Hearnes Multipurpose Building, 65201), 1975.

Recreational activities, for the most part, need not be specifically designed for impaired, disabled or handicapped individuals; however, special attention during the planning, design, and construction stages is needed so that equipment and facilities can be used by all people.

42. Masterplan Technical Report: Mt. Everest-Setterquist Community Park. Oakland, California: Ribera and Sue Incorporated (661 Twenty Seventh Street, 94612), October 1974.

Provides such information as site description, description of site development process, masterplan cost projections, and area study plans for the proposed Mt. Everest-Setterquist Community Park in Vallejo, California.

43. Miller, Peggy L. Creative Outdoor Play Areas. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972.

Ideas are presented on the importance of children's play and practical suggestions given for a variety of readers on how to create, expand, and improve outdoor play areas with emphasis on school sites. Photographic illustrations and play area layouts provide a springboard for design; application can be made to outdoor theaters, shopping centers, apartment complexes, churches, children's hospitals, roadside parks and private homes.

44. Moore, Gary T.; Deborah Buck; and Karen Kolberg. "Children, The Urban Environment and Adventure Playgrounds/Report of a National Conference." AALR Reporter 2:3: 6; January/February 1977.

A national conference on philosophy, values, and research issues regarding children, the urban environment, and play settings with special reference to adventure playgrounds was held October 20-22, 1976, at the University of Wisconsin-Milwaukee. There now exist nineteen adventure playgrounds in the United States and Canada, from Toronto through the Chicago area to California.

45. Morris, Robert. "Evaluation of a Play Environment for Blind Children." Therapeutic Recreation Journal 8:4: 151-155; Fourth Quarter 1974.

Material in this article was extracted from a thesis study which was undertaken to investigate the effectiveness of a specially designed play environment in helping preteenage blind children develop a greater degree of mobility and orientation skill through their play activities. The judgments of qualified people were used in evaluating the effectiveness of the play environment. Although seventy-eight percent of all the evaluators gave the play environment as a complete unit a rating of effective or better, there were some significant differences in evaluations made by various professional groups in the select sample.

46. ______. "A Play Environment for Blind Children: Design and Evaluation." New Outlook for the Blind 68:9: 408-414; November 1974.

A play environment, comprised of eight circular play courts arranged around a ninth court, was designed on the basis of the idea that play could be used to help blind children learn orientation skills that are essential for their development as individuals. Sensory stimulation, especially hearing and touch, and spatial perception are integral parts of the environment, as is the requirement that the child actively participate in order to enjoy the activities. Tactile maps and recorded instructions are also utilized. The design was presented for evaluation to a panel of experts--orientation and mobility instructors, teachers, a psychologist, a recreation therapist, and a research designer. A majority judged the concept, the overall design, and the design of the individual elements to be effective or very effective in promoting the development of orientation skills in blind children.

47. "New Environmental Therapy Complex in Cincinnati." Programs for the Handicapped, 14-16; April 12, 1976.

The new environmental therapy complex at Children's Hospital Medical Center in Cincinnati is described. Elements of the complex are detailed and include bold colors, various angles, shapes, and structures, full-length mirrors, sandboxes, water-play area, tunnels and caves, garden, and various other areas.

48. Outdoor Play Spaces for Young Children. New York, New York: U. S. National Committee for Early Childhood Education (81 Irving Place, 10003), n. d.

49. Passantino, Richard J. Found Spaces and Equipment for Children's Centers. New York, New York: Educational Facilities Laboratories (850 Third Avenue, 10022), 1972. 71 pp. $2.00.

This book is a compilation of ways in which inexpensive and overlooked spaces and objects can be transformed into places and materials for learning. Both indoor and outdoor areas and equipment are described and illustrated with photographs and drawings of area layouts. A final section contains further sources of assistance, sample licensing requirements and codes, and a checklist of found objects with possible sources and uses for each article.

50. Pearce, Mary. "Adventure Playgrounds for the Handicapped." Discover 5:3: 43-48; 1972.

51. Play Learning Centers for Preschool Handicapped Children: Research and Demonstration Project Report. Tampa, Florida: College of Education, Professional Physical Education Program, University of South Florida (33620), August 1975. 97 pp.

Three play learning centers for handicapped children were constructed in Tampa, Florida: (1) The United Methodist Preschool Center's play facility consisted of several interconnected multi-level, brightly colored table tops; it was used by two groups of mentally retarded children; (2) The United Cerebral Palsy Preschool Center's play facility consisted of stairs, inclines, and slides in various colors and textures (foam, wood, carpeting), used by two groups of cerebral palsied children. Children at both sites were videotaped while engaged in unstructured play. Conclusions were similar: play behavior was highly related to the designer's expectations, the play learning centers held the children's attention and both mentally retarded and cerebral palsied children of higher motor ability engaged in more upright play. The third play facility was at a Residential Treatment Center and consisted of an elevated deck under trees, with a ladder, pole, slide, and rope net for access or exit. Nine emotionally disturbed boys helped to design and construct the play center; no videotaping of play was done. As with the other two play centers, play was consistent with the intent of the design. Detailed construction plans, materials used, and cost of all play learning centers are included in the report. Recommendations for further research are given.

52. A Playground for All Children Design Competition Kit. New York, New York: City of New York Parks, Recreation, and Cultural Affairs Administration, and Department of City Planning (2 Lafayette, 10007), 1975.

This design competition kit contains a user group and site analysis, design competition description, competition site map, and related forms for New York City's proposed Playground for All Children.

53. The Playground: The Child's Creative Learning Space. A research project funded by the National Institute of Mental Health. Gainesville, Florida: Bureau of Research, College of Architecture, University of Florida (102A AFA Complex, 32611), n.d. 14 pp.

54. PlayPlans (bimonthly periodical). Phoenixville, Pennsylvania: Playground Clearing House (26 Buckwalter Road, 19460). Subscription, $6.00 per year; copy, $1.50 each.

This periodical provides practical ideas and how-to-do-it information about planning and building playgrounds that are appealing to children of all ages. Each issue contains pertinent articles, many photographs and diagrams, specifications, and question/answer sections. The January/February 1976 issue deals with slides; succeeding issues are to feature bridges, adventure playgrounds, new uses of tires, tree houses, and programs for special populations. Contents emphasize highs and lows, successes and failures, free ideas and costly ones.

55. Rutledge, Albert J. "Playground Design with a Motive in Mind." Parks and Recreation 11:2: 20-21, 43; February 1976.

In choosing among the multitude of playground structures now available, park and recreation planners might first consider the question: Why do children play? Play is seen as arousal-seeking behavior that is an end in itself. The slide, swing, and see-saw of traditional playgrounds lack the complexity needed to offer children something more than the most obvious, basic activities. Psychologist Michael Ellis has suggested that planners should select play pieces which (1) allow children to manipulate them in the greatest variety of ways, (2) allow for the most cooperation between children, and (3) inhibit children the least. These guidelines have been followed in complex playgrounds designed and built by students and faculty in the Department of Landscape Architecture at the University of Illinois in Champaign-Urbana. A comparative investigation between traditional and complex playgrounds showed that the complex playgrounds were overwhelmingly favored in both preference expressions and actual usage.

56. Sharkey, Tony. Building a Playground. Newton, Massachusetts: Education Development Center, Inc. (55 Chapel Street, 02160), 1970. 19 pp.

57. Smiley, Charles W. "Playgrounds for the Mentally Retarded." American Journal of Occupational Therapy 28:8: 474-477; September 1974.

    The article describes how to plan and design an outdoor playground for retarded children that will provide for a variety of social and physical activities in a safe setting. Recommended are three play areas (hardtop, grass, and garden workshop) with features such as a tricycle path, hopscotch and shuffleboard games, a banked area for climbing and tobogganing, flower and vegetable gardens, and a fish pond. Equipment suggested includes swings, see-saws, balance boards, tunnels, and jump tires.

58. Special Education Facilities: Schools and Playgrounds for Trainable Mentally Handicapped Children. Ontario, Canada: Ontario Department of Education, Toronto, School Planning and Building Research Section, Ministry of Education (Mowat Block, 900 Bay Street, M7A 1L2), 1971. 25 pp.

    Intended to assist school boards in planning educational facilities for trainable mentally retarded children, this booklet contains designs illustrating both the general structure and specific room arrangements for various sizes of school and various age groups. The designs show small, self-contained schools where mobility in the grouping of classes and flexibility in the arrangement of training facilities can be achieved easily. In addition to building layout and classroom arrangement, suggestions are made concerning bathrooms, playroom, kitchen, craft room, principal's office, and staff and health room. Discussion of the playground area covers both the planning of outdoor areas and specific types of recommended playground equipment.

59. Topsfield, R. J. "Some General Comments Concerning Playgrounds for Mentally Retarded Children." Discover 5:3: 4-11; September 1972.

60. Utzinger, Robert C. Some European Nursery Schools and Playgrounds. Ann Arbor, Michigan: University of Michigan, Architectural Research Laboratory, 1970. Available from Publications Distribution Services, University of Michigan, Ann Arbor, Michigan, 48104. 79 pp. $3.50.

Narrative and photographic account of some seventeen child care facilities in Europe presenting prototype plans, diagrams, and pictures of playrooms and playgrounds in nursery schools and recreation centers. Recommendations are classified as follows: general, indoor play areas, and outdoor play areas.

61. Wallach, Frances. Presentation made to the New York State Governor's Advisory Committee on the Handicapped, 1976. Reprinted in IRUC Briefings 2:1: 2, 7; December 1976.

62. Wilson, George T. "Implementation of Adventure Playground Concepts." AALR Reporter 2:3: 7; January/February 1977.

Contends that every playground ought to be an adventure playground; a place that meets developmental tasks of childhood in relation to individual differences. Offers suggestions on how to avoid unadventuresome playgrounds.

63. Witengier, Mary. "An Adaptive Playground for Physically Handicapped Children." Physical Therapy 50:6: 821-826; June 1970.

A preliminary report is made of the Magruder Environmental Therapy Complex, an organically planned playground scaled to match the abilities of the child with a physical handicap. The playground is designed to provide a continuum of perceptual-motor experiences and to enable development of perceptual organization. Capitalization upon the child's motivation for play is a unique feature of the play area.

TRANSPORTATION AND TRAVEL

Individuals who because of some physical or mental impairment have difficulty using public transportation make up the mobility-limited population. Such impairments may necessitate use of canes, crutches, walkers, wheelchairs, or prosthetic devices. On the other hand they may simply lessen an individual's ability to use stairs and heavy doors, walk long distances, or understand the intricacies of transit routes and timetables. In a study prepared for the Urban Mass Transit Administration (UMTA), U. S. Department of Transportation, it was estimated that about 13,370,000 handicapped Americans have difficulties with transportation. If the 13,036,000 elderly Americans who are not considered handicapped are added to this figure total is 26,406,000 persons with at least some degree of difficulty in using public transportation. (34) When pregnant women and individuals with broken legs, ankles, and feet are taken into consideration, the figure becomes very large indeed.

Barrier-free facilities for physical education, recreation, and sports cannot be utilized to their fullest if participants cannot get to them. Although this publication focuses primarily on design and adaptation of physical education, recreation, and sports facilities, all personnel involved in these activity areas need to be aware of the impact of the lack of accessible transportation on persons with mobility impairments. Inability to use public transportation not only prevents these individuals from assuming their roles as productive members of a community but can greatly reduce the quality of their lives.

As in any service delivery system, a continuum of transportation alternatives and options must be available so that every individual regardless of type or severity of handicapping condition can benefit from opportunities to participate in meaningful recreation programs and leisure activities. Consideration must be given to the homebound and those confined to litters as well as to fully ambulatory individuals and those able to participate in regular programs and activities on an integrated or mainstreamed basis. The following listing introduces such a continuum and suggests a variety of ways in which transportation problems can be attacked and solved to some degree. Readers are encouraged to send information about ways in which they have been successful in meeting transportation problems of physically disabled and orthopedically impaired persons, those with multiple conditions, severely and profoundly mentally retarded individuals, and elderly persons to AAHPER/IRUC, 1201 Sixteenth Street, N. W., Washington, D. C., 20036.

Homebound	Recreation specialist, volunteer, or advocate under direction of recreation personnel goes to home or facility to work with an individual on a one-to-one basis.
Mobile Unit	Mobile unit and staff go to home or facility to provide recreational opportunities; can be used in conjunction with community intermediate facility, residential center, or various types of activity/day care centers.

Excursions into the community	Take individual into the community for walks, trips, dual activities, tours, spectator events, special events; this approach has implications for leisure counseling.
Individual advocate/ buddy approach	Introduce another participant in the above processes and activities.
Separate/special groups *Intermediate programs* *Full integration*	Volunteer drivers and transportation on an individual basis; through groups like Red Cross, civic groups, Scouts as service projects, agency pools also can be utilized.
	Obtain assistance from used car dealers, service clubs, groups with courtesy cars, National Guard, or other military units, van clubs, and C. B. radio groups.
	Special transportation in vans, station wagons, buses, owned/rented/borrowed by sponsoring agency.
	Contract/subcontract for special transportation--i.e., handibuses, handicabs.
	Use municipal/community transportation system including teaching individuals how to use these systems; participant pays for own transportation including use of taxi cabs.
	Private transportation including personal cars of participants.
	Plan/implement recreation programs and leisure activities close to home in local schools, community agencies, and other facilities to reduce/minimize transportation problems.
	Combinations of all of the above procedures; your own innovative ways that capitalize on unique resources in your community.

Additional consideration must be given to problems inherent in other types of transportation and mobility necessary for full participation in recreation programs and leisure activities. Included are problems associated with (1) subways, (2) elevated trains, (3) public and private airplanes, (4) intercity and transcontinental buses, (5) trains, (6) taxicabs, (7) people movers, and (8) wheelchairs themselves.

Orientation and training of drivers, citizen advocates, buddies, and volunteers must also receive consideration and be carefully planned. While the most important personal trait of these individuals is acceptance of their riders as friends and individual of worth and dignity, those responsible for transporting groups need some special knowledge and specific competencies. There appears to be little unanimity of opinion and action in this area, but some topics that appear most important for orienting and training drivers include: (1) first aid, handling seizures and related emergencies, (2) methods of transfer for individuals with conditions of different types and severities, (3) space requirements for individuals who use different modes of getting from one place to another, (4) supervision and control of riders of all ages, (5) information about different impairments, disabilities, and handicapping conditions, and (6) insurance.

Travel and Tourism

Travel is a highly enjoyable form of recreation for most people. Even those who are unable to afford overseas travel can find a trip within their budget, whether it be a weekend in the mountains, a bus or train trip to a neighboring state, or a plane trip to the other coast.

Handicapped individuals who want or need to travel have exerted considerable pressure on Congress and providers of long-distance transportation to make these services accessible. As a result, progress is being made in accommodating handicapped travelers.

- *Greyhound* has instituted a "Helping Hand" service, in which a companion travels free to assist a handicapped person who needs help boarding, exiting, and traveling by bus. *Trailways* is following suit.
- *Amtrak* is in the process of making stations accessible and adding accessible trains to its fleet.
- *Major airlines* generally can accommodate physically handicapped passengers who call ahead and indicate the extent of their disability. However, airline fears that handicapped individuals would hinder evacuation of passengers in the event of a crash and the overall inaccessibility of airplanes are still obstacles for physically handicapped travelers.

Architectural barriers, difficulties in using commercial long-distance transportation, and high costs of services such as attendants and rental vans have made group travel very appealing to physically and mentally handicapped persons. Group tours for handicapped individuals are not a great deal more expensive than those for able-bodied persons and include such features as assistance in getting around, bus or van transportation, and planned activities at sites already determined as being accessible or that are accessible by use of portable elevators and ramps.

Travel services that accommodate physically and/or mentally handicapped individuals on special tours or tours in mixed groups with nonhandicapped individuals include:

Evergreen Travel Service, Inc.
14929 44th Avenue West
Lynnwood, Washington, 98036

Flying Wheels Tours
Judd and Barbara Jacobson, Owners
148 West Bridge Street, Box 382
Owatonna, Minnesota, 55060

The Guided Tour
8 Asbury Avenue
Melrose Park, Pennsylvania, 19126

Handicapped Travelers Association, Inc.
1291 East Hillside Boulevard
Foster City, California, 94404

Handy-Cap Horizons, Inc.
3250 East Loretta Drive
Indianapolis, Indiana, 46227

Rambling Tours, Inc.
P. O. Box 1304
Hallandale, Florida, 33009

In addition to these services a free travel information service is conducted by Moss Rehabilitation Hospital. This service provides information on accessible hotels, tourist attractions, public facilities, national monuments, and points of interest throughout the world. Physically disabled persons are advised to state their destinations and special interests regarding their travel plans; pertinent information will be returned to them at no cost. Travel inquiries should be directed to Travel Information Center, Moss Rehabilitation Hospital, 12th Street and Tabor Road, Philadelphia, Pennsylvania, 19141.

Transportation and Travel: Resources

Complete addresses of all journals and newsletters referred to in this bibliography may be found in Appendix F, pages 137 to 140.

1. Access Chicago: A Guide to the City. Chicago, Illinois: ACCESS CHICAGO, Rehabilitation Institute of Chicago (345 East Superior Street, 60611), 1973.

   A listing of government buildings, motels, movies, museums, parks, night clubs, churches, restaurants, stores, theaters, recreational facilities, and transportation facilities in the Chicago area is presented. Information concerning accessibility of these facilities is directed toward both ambulant persons with handicapping conditions and wheelchair users. Notes on parking, entrances, interior access, and references are also included.

2. Access Travel: A Guide to Accessibility of Airport Terminals. Washington, D. C.: Architectural and Transportation Barriers Compliance Board and Airport Operators Council International, Inc. (1700 K Street, N. W., 20006), n.d.

Results of an Airport Operators Council International survey of its members to determine accessibility features of terminals are presented. The guide lists many design features of airports and shows which of 118 terminals covered in the survey have accessible features. It does not rate these facilities on accessibility or judge individual airports as good or bad. Travelers with special requirements, such as students, elderly people, skiers, people in wheelchairs, and persons with various handicapping conditions can use this pamphlet when planning air travel.

3. Access Washington: A Guide to Metropolitan Washington for the Physically Disabled. Washington, D. C.: Information Center for Handicapped Individuals, Inc. (1413 K Street, N. W., Twelfth Floor, 20005), 1976. 131 pp.

Compilation of this booklet represents an initial effort by the publishers to develop a guide to the Metropolitan Washington, D. C. area for persons with permanent or temporary disabilities. Continuous on-site inspections of facilities are planned to keep information in the guide up-to-date. Intended as a guide for all disabled people, information about some facilities accessible to ambulatory disabled persons may not imply accessibility to wheelchair users. However, such limitations can be discerned from information given about each facility, which includes parking, entrances, interior accesses, rest rooms, and phones along with other appropriate comments. Although only a cross-section of facilities and services could be covered, this guide presents a thorough listing of such facilities as auditoriums, federal government buildings, hotels, libraries, stores, museums, recreation facilities, restaurants, sites of interest, theaters, and transportation. In addition to serving as a handy reference for disabled persons, it is hoped that this guide will stimulate concern by operators of public facilities in the Metropolitan Washington, D. C., area to provide for special requirements of disabled residents and visitors.

4. "Accessible Transportation: Will We Get There from Here? Legal Advocates Discuss the Problems." Amicus 1:2: 8-11; January 1976.

Describes proceedings at the National Center for Law and the Handicapped Conference on Accessible Transportation for Handicapped Individuals (November 21-22, 1975). After a legislative overview and a review of Southern California's bid for accessible buses, the status of transportation technology is reviewed.

5. Airport Operators Council International, Inc. Survey of Airport Facilities for Accessibility to Handicapped Travelers. Washington, D. C.: the Council (1700 K Street, N. W., 20006), 1975.

This survey may be used to evaluate accessibility of twenty-four particular aspects of airport facilities. Parking, passenger arrival and departure, and exterior circulation are covered along with interior features and services.

6. American Institute of Architects, Potomac Valley Chapter. Barrier-Free Rapid Transit. Final Report of the American Institute of Architects to the United States Social and Rehabilitation Services Administration for the President's Committee on Employment of the Handicapped. Silver Spring, Maryland: the Chapter (912 Thayer Avenue, 20910), 1969.

7. Annand, Douglas R. The Wheelchair Traveler. 1972 Edition. Milford, New Hampshire: the Author (Ball Hill Road, 03055), 1972.

   Information on accessibility of hotels, motels, restaurants, and sightseeing in the United States, Canada, and Mexico is presented in this annual guide.

8. Bay Area Rapid Transit. Guide for Commuters in Wheelchairs. Oakland, California: Bay Area Rapid Transit Authority, 1973.

   This guide is available for commuters in wheelchairs to familiarize them with the new accessible rapid transit system operating in and around San Francisco.

9. British Airports Authority. Who Looks After You at Heathrow Airport? London, England: British Airports Authority, 1973.

   Designed for disabled travelers, this booklet tells where to look for assistance and contains maps of terminal buildings which have rest rooms offering a choice of left-hand transfer, right-hand transfer, or frontal transfer from wheelchair.

10. Caliper, whole issue, Spring 1974. Canadian Paraplegic Association (Central West Division, 825 Sherbrook Street, Winnipeg 2, Manitoba, Canada).

   Information about accessibility of over four hundred hotels, motels, and resorts which are of interest to wheelchair travelers is presented.

11. Carriage of the Physically Handicapped on Domestic and International Airlines. New York, New York: United Cerebral Palsy Association of New York City, Inc. (122 East 23rd Street, 10010), 1973.

   This manual lists policies of thirty-five domestic and international airlines relating to acceptance and transportation of physically impaired, disabled, and handicapped persons. Services provided by each airline for such passengers are also identified.

12. Chicago Department of Aviation. Airport Guide for the Handicapped and Elderly. Chicago, Illinois: the Department (Room 1111, City Hall, 121 North La Salle Street, 60602), 1975.

This guide to O'Hare International Airport includes a map of entrance ramps, parking facilities, accessible washrooms, and lowered telephones. Numerous services and facilities available to passengers with handicapping conditions and elderly passengers are given.

13. "Class Action Suit Filed to Make Buses Accessible." Accent on Living 21:2: 29-30; Fall 1976.

A suit was filed on July 17, 1976, in Federal District Court in Philadelphia to force the United States Department of Transportations's Urban Mass Transportation Administration (UMTA) and other federal agencies to provide subsidies only to those mass transit buses capable of serving the special needs of disabled and elderly persons. If the suit is successful, according to a press release the day the suit was filed, buses with floors seventeen inches off the ground and forty-four inch wide doors and ramps would replace conventional buses with thirty-four inch floors and twenty-seven inch doors.

14. Consumer Information About Air Travel for the Handicapped. New York, New York: Trans World Airlines (605 Third Avenue, 10016), 1976.

Suggestions for temporarily or permanently impaired, disabled, and handicapped individuals to follow in planning a trip by plane are presented. Special services offered by the airline are described.

15. "Cost-Benefit Figures." Committee on Barrier Free Design Newsletter, September 1973, p. 3.

The Federal Rehabilitation Services Administration has estimated that if those handicapped persons who are unemployed for transportation reasons could be made mobile, they would generate annual earnings of more than 452 million dollars. Moreover, their employment could reduce welfare costs by 49 million dollars and increase Federal income tax revenues by 39 million dollars.

16. "Final UMTA Regs Published--But Do They Guarantee Accessible Buses?" Accent on Living 21:2: 30-31; Fall 1976.

Although the Urban Mass Transportation Administration (UMTA) issued final regulations which govern use of federal funds to encourage accessibility for disabled persons on April 30, 1976, one group feels that there are still too many loopholes allowing communities to evade their responsibilities in this area. E. Clarke Ross, Assistant Director of the Governmental Affairs, Department of the United Cerebral Palsy Association, questioned UMTA's failure to specify and require special projects, its heavy emphasis on disabled persons who are employed, and the possibility that an area may evade its responsibility by using special local transit systems rather than making the main transit system accessible.

17. Goodkin, Helen F. Transportation Accessibility. Awareness Paper for the White House Conference on Handicapped Individuals. Washington, D. C.: the Conference (1832 M Street, N. W., Suite 801, 20036), March 1976. 15 pp.

This Awareness Paper was prepared to serve as a resource to stimulate discussions leading to solutions of problems facing individuals with different handicapping conditions. A brief-historical perspective on the problem is also included. The discussion of transportation centers around three areas: mass transit, private vehicles, and long distance transportation.

18. Highway Rest Area Facilities for Handicapped Travelers. Washington, D. C.: The President's Committee on Employment of the Handicapped (20210), n.d.

This booklet lists over 330 barrier-free rest areas which are considered convenient for use by persons in wheelchairs or otherwise severely involved.

19. Mandella, Joseph L., and Harry A. Schweikert, Jr. "Mobility for Physically Impaired Persons." Paraplegia News 25:290: 14-17; November 1972.

Transportation problems facing impaired, disabled, and handicapped persons involve factors related to height, space, and velocity. Five general modes of transportation are discussed in terms of their shortcomings for use with physically impaired persons: auto, bus, taxi, rail, and plane.

20. Millar, Clare. Wheelchair Air Travel. Ontario, Canada: the Author (Box 7, Blair, Cambridge), December 1973.

Suggestions are offered for wheelchair users in planning, preparing for and participating in travel experiences by plane.

21. Nelson, John G. Wheelchair Vagabond. Santa Monica, California: Project Press (710 Wilshire Boulevard, 90401), 1975. 132 pp.

In a direct informal style, the author shares what he has learned through his experiences as a wheelchair vagabond. Readers are encouraged to get out and live a more interesting, more rewarding, and less dependent life. Such aspects of vagabonding as benefits of travel, expenses, choosing a vehicle, companions, equipment and supplies, trip planning, accommodations, housekeeping, and food preparation are explored. The appendix includes the following lists: campground and trailer park guides and directories, places to write for tourist information, camping equipment catalogs, recreational vehicle and camping publications, and publications relating to impaired, disabled, and handicapped persons.

22. New York State Department of Commerce Travel Bureau and the Easter Seal Society of New York State. Vacationlands New York State: Supplement for Handicapped and Senior Citizens, 1976. Available from the Easter Seal Society, 185 Madison Avenue, New York, New York, 10016.

This supplement to *Vacationlands New York State* contains ten sections, each representing a different geographic region of the state. The guide is intended to help people with physically handicapping conditions explore New York. Information on accessibility was compiled from a survey conducted by the New York State Department of Commerce Travel Bureau and follow-up questions from the Easter Seal Society. In general, places that are highly inaccessible have been excluded; however, some attractions that are inaccessible have been included because they are very famous. The ten sections of the supplement include the following regions: Adirondack-Champlain area, The Catskills, Central Area, Niagara Frontier, Capital District-Saratoga Area, Southwest Gateway, Thousand Islands-St. Lawrence Area, New York City and Long Island, Hudson Valley, and the Finger Lakes.

23. Nolan, Virginia. "Tips for Traveling Abroad." Paraplegia News 229:336: 24-25; September 1976.

Gives suggestions for wheelchair travelers in Great Britain. Stresses importance of planning ahead and traveling by train. Accessibility and special accommodations are also discussed.

24. Park, Leslie D. "Barriers to Normality for the Handicapped Adult in the United States." Rehabilitation Literature 36:4: 108-111; April 1975.

The author lists the mobility dilemma as one of three major barriers confronting adults with handicapping conditions. He suggests that persons with these conditons have a tremendous role to play in shaping attitudes of the next generation.

25. Peters, Robert R. Easy Wheelin' in Minnesota: A Wheelchair Accessibility Guidebook. Minneapolis, Minnesota: Education Services Department, The Minneapolis Star-Minneapolis Tribune (425 Portland Avenue, 55488), 1976.

Information on accessibility of such facilities as hotels, motels, restaurants, theaters, dinner theaters, shopping centers, auditoriums, stadiums, state parks, highway rest areas, tourist attractions, and resorts is presented. Related publications and organizations to contact for further information are also listed.

26. President's Committee on Employment of the Handicapped. Guidebooks for Handicapped Travelers. Third edition. Washington, D. C.: the Committee (20210), 1972.

This pamphlet contains a list of the metropolitan guidebooks for eighty-five cities and several foreign countries, along with addresses from which copies of individual guidebooks may be obtained, usually for no charge.

27. Raggio, James J.; Benjamin G. Lipman; Thomas K. Gilhool; and Edwin D. Wolf. The Disabled and the Elderly: Equal Access to Public Transportation. Washington, D. C.: The President's Committee on Employment of the Handicapped (20210), 1975.

The right of impaired, disabled, and handicapped persons to equal access to public transportation is supported in a discussion of relevant legislation and codes of various types. Strategies for implementing the right to equal access are outlined.

28. Seattle Mayor's Committee on Opportunities for the Handicapped. Special Access Map for the Seattle-Tacoma Airport. Seattle, Washington: Mayor's Committee, 1974. Available from Easter Seal Society for Crippled Children and Adults, 521 Second Avenue West, Seattle, Washington, 98119.

This special map is being distributed to travel agencies and airline ticket offices in the state. It describes locations of entrances and facilities designed for impaired, disabled, and elderly individuals.

29. Sleed, Joel. "Improving Travel for the Handicapped." Washington Post, E14; November 3, 1974.

Describes services rendered by transportation companies such as AMTRAK and International Passenger Ship Association. Emphasizes that if companies are given advance notice of special needs of impaired, disabled, or elderly passengers, special accommodations will be made.

30. "South Dakota Gets Handicapped Tour Guide." Paraplegia News 29:337: 13; October 1976.

Impaired, disabled, and handicapped citizens of South Dakota have assisted with preparation of *Wheelchair Vacationing in South Dakota* as the first major project of a new group called Handicapped Citizens of South Dakota. Booklet lists over one hundred attractions and events and more than one hundred motels and restaurants in the state that are accessible to wheelchairs. As a result of surveys leading to the booklet's publication, barriers have been eliminated in several instances so that vacation sites could be included in the publication.

31. Swiss Invalid Association. Guide Des Hotels Pour Handicapes. Froburgstrasse 4, 4600 Olten: Swiss Invalid Association and Swiss Hotelkeepers' Association, 1970.

Printed in three languages, this hotel guide for the disabled states that "The disabled are also entitled to holidays, but up until now architectural obstacles often made holidays impossible." Facilities are in three categories: hotels for wheelchair users, hotels for those who are severely handicapped in walking, and hotels for those who are slightly handicapped in walking.

32. "Transit Study Explodes Some Myths About Handicapped." Paraplegia News 29:334: 36-37; July 1976.

A recent design study has shown that abled-bodied people's stereotyped conceptions of the handicapped population have been a major roadblock to efforts by this group to gain equal access to public transportation services. Dennis Cannon, author of the report, opposes dial-a-ride only systems because they have been found to be too costly and inadequate to serve total transit needs of people with handicapping conditions.

33. United States Department of Transportation, Office of Administrative Operations, Library Services Division. Transportation of the Handicapped: Selected References. Bibliographic Reference List No. 8. Washington, D. C.: the Department (20590), April 1975.

This selected, partially annotated listing of journal articles, papers, and reports on the subject of transportation for persons with handicapping conditions and elderly individuals covers the time span between 1969 and 1974.

34. United States Department of Transportation, Transportation System Center and Urban Mass Transportation Administration. The Handicapped and Elderly Market for Urban Mass Transit Executive Summary. Washington, D. C.: the Department (20590), July 1973.

35. United States Department of Transportation, Office of the Secretary. Travel Barriers. Washington, D. C.: the Department (20590), 1970.

This report summarizes findings of a research program sponsored by the Office of the Secretary, U. S. Department of Transportation. Related literature in fields of rehabilitation and transportation was reviewed, transportation needs surveyed, 211 persons with permanent handicapping conditions interviewed, and alternate solutions analyzed by a team of social scientists, systems analysts, and designers.

36. Vincent, Noreen. "The Handicapped in the City of the Angels." American Rehabilitation 2:2: 9-13; November-December 1976.

Discusses ways that Los Angeles City government has begun to revise and re-evaluate its own attitudes and programs so that persons with handicapping conditions may begin to realize their potential as members of the community. Efforts to provide accessible buildings and transportation services are described. Adoption of a curb cut design that is safe for all citizens, including those with visual impairments, proved so satisfactory that other cities have shown interest in using the concept as a model design. A Department of Public Works brochure describing the design is available upon request.

37. Weiss, Hedy. "Traveling by Air: A Survey." Rehabilitation World Part I in 2:1: 35-37; Winter 1975-1976; Part II in 2:3: 22-24; Autumn 1976.

This survey of international airline and airport facilities for travelers with handicapping conditions was prepared by a staff member of Rehabilitation International, U.S.A. Survey revealed that many airports and airlines are equipped to meet such basic travel demands as the provision of wheelchairs, stretchers, special loading and easy access, and special meals, but only a few have done so comprehensively. All airlines surveyed indicated that a person with a handicapping condition should give advance notice of travel plans.

38. "Welcome Aboard Allegheny." Accent on Living 20:3: 98-99; Winter 1975.

The *Manhandler* is a mechanized dolly that climbs and descends an aircraft's stairs using battery operated belts and gears. It is currently being used by Allegheny Airlines to provide a safer method of boarding handicapped passengers. A passenger is strapped to a straight-backed detachable chair which is wheeled to the plane's stairs; only one airline employee is required to guide the device up the stairs.

APPENDIX A

AUDIO-VISUAL MATERIALS

1. ABRA--Overview (16mm, sound, color, 13 minutes).
   Architectural Barrier Removal Information Center (c/o O. J. Collins,
   Project Director), East Central University, Ada, Oklahoma, 74820.

   Produced by the Ada, Oklahoma, Architectural Barrier Removal Information Center, this overview introduces ABRA!, a magical character who makes the blindfold of unawareness disappear so we can see how environmental barriers affect us all. This presentation touches briefly on six areas: housing, education, recreation, legislation, transportation, and employment. Each of these areas is treated further in separate slide presentations that may be purchased singly or as a set.

2. High Point Playground (16mm, sound, black and white, 10 minutes).
   Playground Clearing House, Inc., 26 Buckwalter Road, Phoenixville,
   Pennsylvania, 19460.

   Captured on film is the total community involvement in constructing a developmental playground at High Point (Michigan) Special School. Children themselves are active participants and partners in developing their own play environment. Costs and wastes are kept to a minimum as the process, not the product, is emphasized. Safety is a foremost consideration despite the adventure emphasis reflected in devices constrcuted from cargo mats, tires of all sizes and types, and cables. Balance beams, bridges, fun houses, swings, and slides are just a few of the devices incorporated on this playground. A basic philosophy expressed is that a playground of this type is never finished; it is changed as times change.

3. Innovative Equipment: Development and Utilization (½" videotape, black and white, 32 minutes).
   Jack Llewellyn, Department of Health, Physical Education, and
   Recreation, Mankato State University, Mankato, Minnesota 56001.

   Various pieces of homemade equipment used to attain specific physical, motor, and perceptual-motor objectives for moderately and severely/profoundly mentally retarded and multiple involved persons at Wheatridge (Colorado) Home and School. In addition to showing residents actively using each of the pieces of equipment, a variety of modifications, construction suggestions, helpful hints and practical pointers are presented. Among the kinds of equipment shown are balance beams, tilt boards, spring boards, carpet covered barrels, mattresses, lazy Susans, T-stools, scooter boards, ladders, sound drums, and bleach bottles. Application of the devices to early childhood is also discussed.

4. The Pacemakers--Lady Allen of Hurtwood (16mm, sound, color, 15 minutes).
Central Office of Information, Hurculer Road, Westminster, London,
England, or the British Embassy, Washington, D. C. 20009

A new playground designed especially for handicapped children is shown and discussed. Based on concept of lots of space and freedom of movement, play opportunities for children with a variety of handicapping conditions who are usually overprotected at home are discussed. Such playgrounds not only challenge children in terms of activity but also provide places where they can engage in social interaction with peers.

5. People Going Places and Doing Things (slide/audio cassette program, 17 minutes), and The Possibilities (slide/audio cassette program, 10 minutes).
Washington Easter Seal Society for Crippled Children and Adults,
521 2nd Avenue West, Seattle, Washington, 98119.

These two programs can be used as a coordinated set or independently of each other to present different messages regarding architectural barriers, accessibility, and barrier-free design. The first slide/cassette program shows individuals with a variety of handicapping conditions doing just what the title says--going places and doing things. With only background music--no words are spoken--individuals with different handicapping conditions are shown taking part in a wide variety of educational, recreational, social, and vocational activities throughout the community. Togetherness of all comes through loud and clear. The second slide/cassette program deals with accessibility standards themselves. Each standard is presented in graphic form followed by pictures of facilities where the standard had been applied appropriately. Among specific standards presented are those dealing with parking, stairs and treads, handrails, entrances in terms of access and clearance, hardware, water fountains, elevators, and work areas. Accessibility in all instances is approached in terms of visually impaired persons as well as those in wheelchairs, on crutches, and with braces.

6. Play Learning Centers for Preschool Handicapped Children (16mm, sound, color, 25 minutes).
Division of Educational Resources, University of South Florida,
Tampa, Florida, 33620.

This presents a visual report of an investigation of the design, construction, and evaluation of play learning centers for preschool children with various handicapping conditions. Three different play learning centers are discussed by the project staff; children are shown actively using each of these play learning centers. Basic criteria followed in developing each center include: (1) provide safe developmental opportunities for young children, (2) use basic tools and materials that are available to others and within cost capabilities of similar facilities, and (3) constructed in a reasonable amount of time by non-professional personnel. Videotapes were used to reward play behaviors of children and to analyze ways they interacted with each center. The same process was used for three different facilities with different populations of children. Further research and evaluation are to continue into the second year of this project funded by the Bureau of Education of the Handicapped.

7. The Surest Test (16mm, sound, color, 10 minutes).
Washington Easter Seal Society, 521 2nd Avenue West, Seattle,
Washington, 98119.

With only two words spoken in the entire film, problems confronting individuals in wheelchairs are poignantly expressed. A mobile and independent individual in a wheelchair leaves a clinic and goes apartment hunting. Despite driving her own car she is confronted with architectural barriers of all types everywhere she turns. Telephone booths are too narrow and telephones too high. Steps, revolving doors, narrow door jambs, curbs, steps and more steps confront this uneasy rider. Whether buildings are big or little, old or new, they all have one thing in common--barriers and more barriers. Public rest rooms--if she can get into one--have unique and special barriers--inaccessible wash basins, too high mirrors, and narrow toilet stall doors that usually open the wrong way! Rest rooms at service stations present their barriers--curbs, doors, and cars blocking access. The symptomatic expression of thoughtless attitudes of the general population come through loud and clear. The surest test of a civilization is in its architecture.

Additional films related to architectural accessibility are available from a variety of sources. As the following films have not been previewed by staff of Physical Education and Recreation for the Handicapped: Information and Research Utilization Center (IRUC), no annotation is provided. It is recommended that these, and all other audiovisual materials, be previewed before any use.

8. All Things on Wheels Aren't Equal (sound, color, 14 minutes).
Program for the Higher Education of the Disabled, Hofstra University,
1000 Fulton Avenue, Hempstead, Long Island, New York, 11550.

9. Beating the Averages (sound, color, 30 minutes).
Chief, Distribution Section, National Audiovisual Center, Washington,
D. C., 20409.

10. Planning for the Handicapped.
International Rehabilitation Film Library, 20 West 40th Street, New
York, New York, 10018.

11. Sound the Trumpets.
International Rehabilitation Film Library, 20 West 40th Street, New
York, New York, 10018.

APPENDIX B

ORGANIZATIONS AND INDIVIDUALS WITH INFORMATION ON ARCHITECTURAL ACCESSIBILITY

American Institute of Architects
1735 New York Avenue, N. W.
Washington, D. C. 20006

Architectural and Transportation Barriers Compliance Board
330 C Street, S. W.
Washington, D. C. 20201

Educational Facilities Laboratories
850 Third Avenue
New York, New York 10022

National Center for a Barrier-Free Environment
8401 Connecticut Avenue
Washington, D. C. 20015

National Center for Law and the Handicapped
1235 North Eddy Street
South Bend, Indiana 46617

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

National Paraplegia Foundation
333 North Michigan Avenue
Chicago, Illinois 60601

Paralyzed Veterans of America, Inc.
7315 Wisconsin Avenue, Suite 301-W
Washington, D. C. 20014

Playground Clearing House, Inc.
26 Buckwalter Road
Phoenixville, Pennsylvania 19460

President's Committee on Employment of the Handicapped
Committee on Barrier-Free Design
Washington, D. C. 20210

Rehabilitation Services Administration
330 C Street, S. W.
Washington, D. C. 20201

Edward Steinfeld, Project Director
New ANSI Standards for the Physically Handicapped
Syracuse University School of Architecture
Research Office
118 Clarendon Street
Syracuse, New York 13210

Also Contact:

State Chapters of National Easter Seal Society for Crippled Children and Adults

Individual States have their own Governor's Committee on Employment of the Handicapped

Other Services:

Richard L. Austin and Associates
Landscape Architects/Recreation Planners
P. O. Box 1141
Manhattan, Kansas 66502

Barrier-Free Environments, Inc.
P. O. Box 3446
814 Wachovia Building
Fayetteville, North Carolina 28305

Interface
Human Factors Design Consultants
P. O. Box 5688
Raleigh, North Carolina 27607

APPENDIX C

SUPPLIERS OF EQUIPMENT FOR PHYSICAL EDUCATION AND RECREATION FACILITIES

American Foundation for the Blind
15 West 16th Street
New York, New York 10011

R. E. Austin and Son
705 Bedford Avenue
Bellmore, New York 11710

Arrow System, Inc.
P. O. Box 1049
300 Canal Street
Lawrence, Massachusetts 01842

Bailey Manufacturing Company
118 Lee Street
Lodi, Ohio 44254

Belson Manufacturing Company, Inc.
111 North River Drive
P. O. Box 207
North Aurora, Illinois 60542

Big Toys
1940 East D Street
Tacoma, Washington 98421

The Brewster Corporation
Old Saybrook Connecticut 06475

J. E. Burke Company
P. O. Box 549
Fond du Lac, Wisconsin 54935

Childcraft Education Corporation
20 Kilmer Road
Edison, New Jersey 08817

Cleo Living Aids
3957 Mayfield Road
Cleveland, Ohio 44121

Columbia Cascade Timber Company
1975 S. W. Fifth Avenue
Portland, Oregon 98201

Elmer's Weights, Inc.
P. O. Box 39
Wolfforth, Texas 79382

Fairway King, Inc.
3 East Main
Oklahoma City, Oklahoma 73104

Flaghouse, Inc.
18 West 18th Street
New York, New York 10011

Form Incorporated
P. O. Box K
South Lyon, Michigan 48178

Game Time
6874 Washington Avenue South
Eden Prairie, Minnesota 55343

GSC Athletic Equipment
Gymnastic Supply Company
600 North Pacific Avenue
San Pedro, California 90733

J. E. Gregory Company
West 922 First Avenue, Suite 221
Spokane, Washington 99204

Hammatt and Sons
P. O. Box 2004
Anaheim, California 92804

Holbrook-Patterson, Inc.
Coldwater, Michigan 49036

Jayfro Corporation
P. O. Box 400
Waterford, Connecticut 06385

Jennings
P. O. Box 208
Litchfield, Michigan 49252

Lodge Sports Limited
Trading Estate
West Molesey, Surrey, England

Maddak, Inc.
Pequannock, New Jersey 07440

Mini-Gym
P. O. Box 266
909 West Lexington
Independence, Missouri 64051

Miracle and Jamison
P. O. Box 275
Highway 6 West
Grinnell, Iowa 50112

New Toys, Inc.
3271 North Cramer Street
Milwaukee, Wisconsin 53211

North American Recreation
P. O. Box 758
Bridgeport, Connecticut 06619

PlayCube Corporation
Maliard Point Road
Essex, Connecticut 06426

Playscape Products
2298 Grissom Drive
St. Louis, Missouri 63141

J. A. Preston Corporation
71 Fifth Avenue
New York, New York 10003

Recreonics Corporation
6202 La Pas Trail
Indianapolis, Indiana 46268

Science for the Blind Products
221 Rock Hill Road
Bala-Cynwyd, Pennsylvania 19004

Skill Development Equipment Company
1340 North Jefferson
Anaheim, California 92807

Synestructics, Inc.
Environmental Structures Division
9559 Irondale Avenue
Chatsworth, California 91311

Things From Bell, Inc.
P. O. Box 26
90 Clinton Street
Homer, New York 13077

U. S. Games, Inc.
1393 Cypress Avenue
P. O. Box E.G. 874
Melbourne, Florida 32935

Wolverine Sports
745 State Circle
Ann Arbor, Michigan 48104

World Wide Games
Box 450
Delaware, Ohio 43015

Environmental Resource Center

—making the outdoors available to the handicapped

RAY McGRATH

The town of Hempstead, New York, has developed plans for construction of an Environmental Resource Center to be located on the Atlantic Ocean at the Lido Beach Town Park. The Center has been planned to take advantage of its natural setting and existing facilities. The facility is intended to provide year-round recreational opportunities for physically handicapped, emotionally disturbed, and mentally retarded children and adults and also for nonhandicapped participants.

In 1968, the Town of Hempstead began the ANCHOR Program (Answering the Needs of Children with Handicaps through Organized Recreation), serving 150 children at one central facility. After four years, the program was serving 450 children in three school facilities and a central summer day camp. It is estimated that by 1974 the program will be serving 750 participants, the maximum number that can be accommodated by the present site and facilities. Based on figures supplied by the Bureau of Cooperative Education Services (BOCES), there are over 1800 handicapped children presently residing in the Town of Hempstead—more than double the number that can be served at the present facility at one time. This figure does not include adults. The Environmental Resource Center, to be constructed at the present temporary site of Camp ANCHOR, is intended to meet the needs of a steadily increasing population of handicapped persons in the town and to serve as a recreation center for the general public as well.

The facilities have been planned to provide a "normal" recreation environment—which will include interaction with non-disabled people—where the handicapped can acquire recreational skills that they can use during leisure time in their everyday surroundings away from the Center. The Center has been designed to enable the handicapped to achieve personal success in improving motor skills and coordination; developing such senses as sight, touch, and taste; building character; and achieving social development.

In designing the Environmental Resource Center, primary consideration has been given to the following points:

The Center building has been designed and will be scheduled to integrate nonhandicapped persons into activities in the regular program and during free time.

Buildings and grounds have been designed for full accessibility by eliminating all architectural barriers that make it difficult for the handicapped to participate in many recreation programs.

Facilities will provide maximum flexibility in use of space; portable equipment will be used wherever possible.

The Center is planned to handle a peak load of 750 handicapped persons at any one time.

The original master plan for Lido Beach Town Park, developed in 1967, recommended the establishment of group picnic grounds, camp grounds, beaches for surfing and bathing, and areas for court games and field sports. To date, both beaches have been established, picnic grounds have been developed, there is parking for 600 cars, and an existing structure has been converted into an administration and community building. Camp ANCHOR has also erected temporary facilities on the site.

(Such off-site facilities as tennis courts and ice skating rinks at other Town parks are also used in the ANCHOR Program.) The construction of the Environmental Resource Center represents the culmination of the original master plan.

As facilities develop, participants grow more confident, and staff and volunteers become more innovative and creative, the program conducted at the Center will expand naturally from the existing program. Some major areas of past programming that will continue include music, arts and crafts, physical exercise, field and court games, aquatics, special events such as Christmas shows and family picnics, field trips, and home economics and hygiene. In the area of cultural activities, there will be much emphasis on dramatics—one-act plays, role playing, and classes in the basic principles of acting. Through the arts and crafts areas of the program, youngsters will develop hobbies which they can pursue at home.

It is expected that environment related activities will be substantially increased. Current plans call for programs on:

Interpretation of the economy of Long Island and New York in terms of animal life, erosion, plant life, etc.
Horticulture, including gardening
Animal husbandry—care, feeding, and raising of animals
Outdoor recreation skills—bait and fly casting, fly tying, resource management, camping skills, riflery, and laboratory techniques
Special events—nature projects (building bird houses, conservation programs), hikes, fishing, trips, flower shows, pet shows, fishing contests, and hobby shows and activities

In the area of social activities, efforts will be made to integrate handicapped and non-handicapped people in such joint projects and programs as group camping, parties, family picnics, dances, and table games. Both handicapped and non-handicapped volunteers will be encouraged to work with participants in the program.

Programs in the area of physical activity will be expanded to include badminton, volleyball, boating, fishing, bike riding, croquet, horseshoes, table tennis, billiards, baseball, softball, basketball, gymnastics, motor activities, roller skating, and free play. Games and equipment will be modified and adapted to fit the particular handicaps of the participants.

PROGRAM AREAS

The facilities at the Center have been designed principally for use by the handicapped, with time periods left unscheduled for use by other groups. Facilities are divided into five program areas: court games; open space and playgrounds; camping, crafts, nature trails, and gardens; beach; and the center building.

Court Games

The court games area, located between the Center and general park picnic area, will be utilized by both handicapped and nonhandicapped groups. Courts will be arranged and spaced so that handicapped participants, particularly those in wheelchairs, can circulate freely between them. Pavings for the circulation system will be hard surfaced. Architectural and plant materials will be used to provide wind screens and shade so as to relieve the participants from excessive heat from the summer sun, to entrap the fall-winter sun, and to offer protection from cooler fall and spring winds.

Open Space and Playgrounds

Open space is of major importance to the entire outdoor program. It will provide a free area for group gatherings and will serve as a general orientation for the outdoor facilities. In design, it is intended to complement the mass of the Center's buildings.

The playground has been designed to reflect the concept of a progressive obstacle course. It will function as an obstacle course or can be utilized for separate play activities or units. The handicapped will be directed around the playground to the various activity areas that require specific motor skills or combinations of motor movements. Appropriate by-passes will be provided for the severely handicapped and those in wheelchairs. However, the by-passes will contain obstacles or challenges so that the youngsters will experience the satisfaction of success and learn to cope with obstacles they will face every day in their "normal" environment. Learning to overcome obstacles will provide exciting challenges for the handicapped youngsters. The play experience will help the youngsters develop necessary motor skills to cope with the obstacles they will face in the course of their everyday lives.

The sand and water play areas will provide a combination of learning and play experiences. The water fountains, chutes, canals, and pools will provide multiple combinations of activity involving lights, sound, and water movement variations for play and interpretation of water action. In this area, destructive erosion and constructive sedimentation processes will be demonstrated. Sand and concrete mushrooms for general play will be separated from the water demonstration area. Concrete pavement along the water route and canals will allow those in wheelchairs and other severely handicapped persons to participate in water activities.

Sitting walls and curbing will be provided to guide the blind. The shelter structure in this area will function as a sun and rain protection station, a place for a lunch break, and homeroom stations.

Camping, Crafts, Nature Trails, and Gardens

All of the activities to be carried on in this area are interrelated and thus will be adjacent to each other and designed for easy and rapid movement and communication between activity stations. Gardens and nature trails will provide planting areas to be maintained by handicapped individuals or groups. A minimum of eight large plots will be provided, with the ability to subdivide if the demand is large enough. The nature garden area will be large enough to accommodate 120 people at a time. Routes to raised garden plots will be designed to provide easy access for approximately 30 handicapped youngsters at a time. The shelter and storage structure designed to house garden irrigation equipment will also serve as a homeroom teaching station.

The nature trail system will have four modes, each related to different aspects of the ecological systems of the seashore and Long Island. Agricultural, marine, plant, and animal life can be displayed in panels and text materials; samples and other appropriate materials can be shown in a variety of interpretive demonstrations.

Camping

Three camping units will be provided in the camping section. Each unit will be conveniently located with respect to the common council ring and shelter structure that will be used for large group indoor and outdoor activities. The camping units will also be available to nonhandicapped groups.

Each camping unit will have three permanent wood platforms. One platform will be large enough to accommodate the leader's tent and small groups of six to ten overnight campers. The other platforms will be used to serve groups of from ten to eighteen campers in individual tents accommodating from two to six children. The camping area will have a storage facility, personal and miscellaneous camping equipment, fireplaces, eating tables, and a general activity area for demonstration and small crafts instruction.

Arts and Crafts

A shelter with three enclosed sections will serve as homerooms for various arts and crafts activities. The shelter will have toilet and storage facilities and will operate throughout the year. Each of the three related outdoor classrooms will serve as instruction, demonstration, work, and display areas. Appropriate paths for movement will be interspersed through these areas to accommodate handicapped participants and visitors.

Beach

Access to the beach activity area will be provided at three separate locations. These points of access relate to other use areas in the Center. The main access will connect the parking area to the beach. The other two access points will connect the court games and camping and crafts areas to the beach activity area. Platform stations and a connection boardwalk system will be constructed for use by the handicapped. The boardwalk will also serve to protect the dune areas by keeping traffic off them.

Center Building

The Center building will have an area of approximately 50,000 square feet, including circulation and mechanical space. The building design provides for use by the nonhandicapped as well as the handicapped and includes: (1) the entrance and lobby area, (2) the shop, crafts, and interpretive area; (3) the activity area; and (4) the auditorium-cafeteria complex.

Entrance and Lobby

Directly adjacent to the lobby will be the general office from which access will be available to individual staff offices, the director's office, and consultation rooms. A nurses area including a waiting room, examination room, and a three-bed hospital type facility will be adjacent to and convenient to the lobby and other areas of the building. The nurses area will also have access to an outdoor driveway to facilitate possible ambulance service. There will be a staff lounge adjacent to the administration area, room for about 350 lockers in a separate area, and toilets located directly adjacent to the lobby.

Shops and Crafts

The area to be used for shops, handicrafts, and science will be a separate entity, and will be somewhat removed from the general circulation pattern. The studio workshops for ceramics, painting, photography, home economics, woodworking, and metal crafts will be designed and furnished individually to accommodate these specific requirements. The nature laboratory and its adjacent greenhouse and display area will serve two groups, and be equipped with mechanical ventilation, humidity control, and temperature control. The greenhouse will be located on the outside wall towards the southern exposure.

Activity Center

The activity center will be designed to accommodate physical activities including sports, games, and exercise programs. The main room will be large enough and proportioned to accommodate an official basketball court. The spectator area adjacent to the basketball court will include fold-away bleachers to allow use of the space for dance and other activities. Boys and girls showers, lockers, and rest rooms will be directly accessible to the main activity center and to the indoor-outdoor pool. A separate exercise room equipped and designed for weightlifting and specific therapeutic activities for youngsters with specific types of handicaps will be adjacent to the locker and shower rooms. The pool will be served by the locker room facilities which will be oriented for indoor and outdoor activities.

The game rooms for billiards, table games, and table tennis will be a separate part of the main activities complex and will be used both in conjunction with the activities center and as a separate facility in which youngsters may or may not use the shower and locker rooms. The basic design of the activity center will be flexible enough that the area can be used in many ways by different groups at the same time. The capacity to divide areas, close off sections, and mount and dismount equipment efficiently will be an integral part of the design.

Auditorium-Cafeteria Complex

The auditorium-cafeteria complex will be large enough to handle meetings of 350 people and feed a like number.

(continued on page 66)

Environmental Resource Center

(continued from page 48)

The auditorium will also be used for music programs, dances for entertainment and social purposes, dramatic presentations, large conferences, and display areas. The complex will be designed so that it can be used to feed large and small groups. The stage and back stage area are designed to provide professional type shows, as well as for training in the dramatic arts. The main auditorium-cafeteria will be adjacent to the stage and projection area, with the music room being either adjacent to the stage area or incorporated within it. A home economics room will be located near the cafeteria.

The entire building complex will also be available on a programmed basis to nonhandicapped groups and individuals within the town. The pool, the auditorium, the cafeteria, and the arts and crafts section will be available for use by organizations, school groups, and individuals on a scheduled basis throughout the year.

PROGRAM MANAGEMENT

The program will continue under the direction of the Department of Parks and Recreation. A professional consultant in the field of therapeutic recreation will continue to advise the Director of Recreation. Professionally trained personnel in the areas of special education, recreation, and therapeutic recreation will continue as group leaders and supervise the expanding program.

The existing leadership techniques will continue as in the past. They include grouping all children on the basis of age level and ability to perform so that youngsters with different handicaps are in the same group; basing instructional activities on the development of a progression of skills; providing opportunities for the handicapped to participate with the non-handicapped in the program; using handicapped volunteers as helpers in the program; and offering remedial and corrective instruction to help children overcome special problems.

In the future, the Center will provide:

Increased participation by nondisabled residents

More unstructured situations in which the handicapped can use the facilities informally on weekends when the Center will be open for use by all residents of the Town

Increased activity programs and opportunities for handicapped adults to participate in the Center's activities

More opportunities for qualified handicapped people to serve as group leaders and supervisors

To provide increased services to the handicapped at the Center, additional personnel and leadership will be needed. In this regard, the following objectives have been established:

Providing a management authority as outlined in the State enabling legislation.

Setting up a committee of appointed or elected citizens to whom the welfare of the handicapped is a prime concern.

Establishing an instructional-management team of well-qualified professional leaders, capable well-trained volunteers, and competent management administrators.

Obtaining an adequate, dependable and continuous source of funds so as to establish, continue, and improve programs and facilities.

Conducting research so as to improve programs, facilities, and services for the handicapped.

The Environmental Classroom

Donald E. Hawkins and Dennis A. Vinton

Presenting the backgrounds of the current environmental and educational crises, this new text proposes a common solution by providing direction for full utilization of community resources as educational facilities. It considers the total environment as an educational tool which will develop within the learner an awareness and understanding, and a desire to improve man's environment. Suitable for Physical Education, Sociology, Education, Ecology and Recreation courses, this book looks at learning in terms of present and future needs and concludes that the current fixed-time, fixed-place structure must yield to learning at all times in all places.

Jan. 1973 app. 416 pp. 6⅞" x 9" cloth
(013-283135-X)

hawkins & vinton

prentice-hall

**For further information write:
Robert Jordan, Box No. 74X,
College Division, Prentice-Hall, Englewood Cliffs, New Jersey 07632**

APPENDIX E

SELECTED LAWS PERTAINING TO ARCHITECTURAL ACCESSIBILITY

Architectural Barriers Act of 1968
Public Law 90-480

To insure that certain buildings financed with Federal funds are so designed and constructed as to be accessible to the physically handicapped.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, as used in this Act, the term "building" means any building or facility (other than (a) a privately owned residential structure and (b) any building or facility on a military installation designed and constructed primarily for use by able-bodied military personnel) the intended use for which either will require that such building or facility be accessible to the public, or may result in the employment or residence therein of physically handicapped persons, which building or facility is--

(1) to be constructed or altered by or on behalf of the United States;

(2) to be leased in whole or in part by the United States after the date of enactment of this Act after construction or alteration in accordance with plans and specifications of the United States; or

(3) to be financed in whole or in part by a grant or a loan made by the United States after the date of enactment of this Act if such building or facility is subject to standards for design, construction, or alteration issued under authority of the law authorizing such grant or loan.

SEC. 2. The administrator of General Services, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings (other than residential structures subject to this Act and buildings, structures, and facilities of the Department of Defense subject to this Act) as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings.

SEC. 3. The Secretary of Housing and Urban Development, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings which are residential structures subject to this Act as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings.

SEC. 4. The Secretary of Defense, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings, structures, and facilities of the Department of Defense subject to this Act as may be necessary to insure that physically handicapped persons will have access to, and use of such buildings.

SEC. 5. Every building designed, constructed, or altered after the effective date of a standard issued under this Act which is applicable to such building, shall be designed, constructed, or altered in accordance with such standard.

SEC. 6. The administrator of General Services, with respect to standards issued under section 2 of this Act, and the Secretary of Housing and Urban Development, with respect to standards issued under section 3 of this Act, and the Secretary of Defense with respect to standards issued under section 4 of this Act, is authorized--

(1) to modify or waive any such standards, on a case-by-case basis, upon application made by the head of the department, agency, or instrumentality of the United States concerned, and upon a determination by the Administrator or Secretary, as the case may be, that such modification or waiver is clearly necessary, and

(2) to conduct such surveys and investigations as he deems necessary to insure compliance with such standards.

Rehabilitation Act of 1973
Public Law 93-112

Architectural and Transportation Barriers Compliance Board

SEC. 502. (a) There is established within the Federal Government the Architectural and Transportation Barriers Compliance Board (hereinafter referred to as the "Board") which shall be composed of the heads of each of the following departments or agencies (or their designees whose positions are Executive Level IV or higher):

(1) Department of Health, Education, and Welfare;

(2) Department of Transportation;

(3) Department of Housing and Urban Development;

(4) Department of Labor;

(5) Department of the Interior;

(6) General Services Administration;

(7) United States Postal Service; and

(8) Veterans' Administration.

(b) It shall be the function of the Board to: (1) insure compliance with the standards prescribed by the General Services Administration, the Department of Defense, and the Department of Housing and Urban Development pursuant to the Architectural Barriers Act of 1968 (Public Law 90-480), as amended by the Act of March 5, 1970 (Public Law 91-205); (2) investigate and examine alternative approaches to the architectural, transportation, and attitudinal barriers confronting handicapped individuals, particularly with respect to public buildings and monuments, parks and parklands, public transportation (including air, water, and surface transportation whether interstate, foreign, intrastate, or local), and residential and institutional housing; (3) determine what measures are being taken by Federal, State and local governments and by other public or nonprofit agencies to eliminate the barriers described in clause (2) of this subsection; (4) promote the use of the International Accessibility Symbol in all public facilities that are in compliance with the standards prescribed by the Administrator of the General Services Administration, the Secretary of Defense, and the Secretary of Housing and Urban Development pursuant to the Architectural Barriers Act of 1968; (5) make to the President and to Congress reports which shall describe in detail the results to its investigations under clauses (2) and (3) of this subsection; and (6) make to the President and to the Congress such recommendations for legislation and administration as it deems necessary or desirable to eliminate the barriers described in clause (2) of this subsection.

(c) The Board shall also (1) (A) determine how and to what extent transportation barriers impede the mobility of handicapped individuals and aged handicapped individuals and consider ways in which travel expenses in connection with transportation to and from work for handicapped individuals can be met or subsidized when such individuals are unable to use mass transit systems or need special equipment in private transportation, and (B) consider the housing needs of handicapped individuals; (2) determine what measures are being taken, especially by public and other nonprofit agencies and groups have an interest in and a capacity to deal with such problems, (A) to eliminate barriers from public transportation systems (including vehicles used in such systems), and to prevent their incorporation in new or expanded transportation systems and (B) to make housing available and accessible to handicapped individuals or to meet sheltered housing needs; and (3) prepare plans and proposals for such further actions as may be necessary to the goals of adequate transportation and housing for handicapped individuals, including proposals for bringing together in a cooperative effort, agencies, organizations, and groups already working toward such goals or whose cooperation is essential to effective and comprehensive action.

(d) In carrying out its functions under this section, the Board shall conduct investigations, hold public hearings, and issue such orders as it deems necessary to insure compliance with the provisions of the Acts cited in subsection (b). The provisions of subchapter II of chapter 5 and chapter 7 of title 5, United States Code, shall apply to procedures under this section, and an order of compliance issued by the Board shall be a final order for purposes of judicial review.

APPENDIX F

LISTING OF JOURNALS AND NEWSLETTERS CITED IN BIBLIOGRAPHIES

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Achievement, The Achievement Disabled Action Group, Inc., 925 N. E. 122nd Street, North Miami, Florida, 33161.

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